Flexible Steel Lacing Co v Beltreco Ltd [2000] FCA 890

FEDERAL COURT OF AUSTRALIA

HELY J

HELY J:

1 Lagging material, or simply "lagging", is a term used in the conveyor industry to describe material used to cover pulleys. Lagging of pulleys is done for two main reasons: first, to protect the pulley from wear. Second, to improve the ability of the pulley to grip and drive the conveyor belt. The principal application of pulley lagging is in conveyor systems used to handle bulk materials, for example the transportation of mined minerals such as coal, or iron ore, where the conveyor belt often runs for a considerable distance.

2 The applicant is, and has been since 24 December 1991, registered as the proprietor of Australian Patent No 575408 in respect of an invention entitled "Replaceable Lagging for Belt Driving Drums" ("the first patent") which was granted on 21 November 1998. The applicant was also registered as the proprietor of Australian Patent No 584013 in respect of an invention entitled "Pulley Lagging" ("the second patent") which was granted on 1 September 1989. The second patent lapsed on 25 December 1997 for non payment of fees. There are proceedings pending in the Patent Office in relation to the restoration of the second patent.

3 The present proceedings were commenced by an application filed on 12 November 1997. The proceedings are for infringement of the first and second patents. The patents are similar in content, and directed towards the same general technology. The infringement of the patents is alleged to have occurred not later than March 1996, a date prior to the lapse of the second patent. As the proceedings include a claim for damages for infringement of the second patent, the fact of its lapse after the commencement of the proceedings does not render issues of infringement and validity in relation to the second patent academic. The applicant also contended that there would be utility in making a declaration on these issues, against the possibility that the second patent may be restored. However, having regard to the damages claim, it is not necessary to pursue the appropriateness or otherwise of proceeding upon that basis.

4 The evidence and the submissions concentrated on the first patent. I shall do likewise, and will refer only to the second patent where it is necessary to do so.

5 Some relevant dates in relation to the first patent are as follows:

26 June 1984:	Lodgment of provisional specification.
25 June 1985:	Lodgment of complete after provisional specification AU-A-44164/85.
24 September 1987:	Patent Office examine reports unfavourably in relation to s 48(3) of the 1952 Act having regard to the Holz specification.
26 April 1988:	Lodgment of first statement of amendments.
26 May 1988:	Lodgment of second statement of amendments. Specification lodged in the form as finally accepted and granted.
9 June 1988:	Application accepted and amendments allowed.
28 July 1988:	Accepted application published.
28 November 1988:	Patent granted with effect from the date of filing of the complete specification.

6 The respondent accepts that the product described in the specification as filed is a development of, and consistent with, the product described in the provisional specification. Apart from minor, immaterial changes, the complete text of the provisional specification is included in the specification as filed. However, it is the respondent's contention that a number of substantial and fundamental amendments were made to the specification in 1988 before its acceptance, such that the lagging material described and claimed in the patents as granted is different from that described in the specification. In the respondent's contention, the effect of the amendments was to claim new matters which had not previously been disclosed; a different product is applied by a different method. Whether the respondent's contentions in this regard should be accepted raises a number of substantial questions as to the construction of the patent to which it will be necessary to return.

7 The inventor of the products the subject of the first and second patents is Edwin Arthur Barnes. In 1983, he formed a company, Belle Banne (Australia) Pty Ltd which later changed its name to Belle Banne Flexco Pty Ltd ("Belle Banne"). These products were

developed by Mr Barnes on behalf of Belle Banne. In 1991 Belle Banne became a subsidiary of the applicant, and the first and second patents were assigned to the applicant.

8 Belle Banne began commercial production of its lagging product at the beginning of 1985. Late in 1985 Bell Banne produced a ceramic lagging product, and commercial production of the ceramic lagging began in early 1986. Both products were a commercial success. The respondent contends that the Belle Banne product is not the product described and claimed in the first and second patents. The resolution of that contention depends upon the resolution of the questions of constructions referred to above.

9 The patent was granted under the *Patents Act* 1952 (Cth) ("the 1952 Act"). It is common ground that the issue of invalidity is to be determined under the *Patents Act* 1990 (Cth) ("the 1990 Act"), but the effect of s 233(4) of the 1990 Act is that the respondent has to show that the patents would be invalid under both Acts. The practical effect of that is that issues of obviousness and novelty are to be determined by reference to the provisions of s 100(1)(e) and (g) of the 1952 Act rather than under the corresponding provisions of the 1990 Act, which would be easier to satisfy.

10 Invalidity is also asserted on the basis that the specification does not describe the best method known to the applicant for the patent of performing the invention claimed (1990 Act: s 40(2)(a)). It is also said that there has been a failure to comply with s 40(3) of the 1990 Act inasmuch as the claims include expressions which are unclear. Finally, on the issue of invalidity, it is said that the invention is not useful in that claimed advantages which the invention is said to possess will only be achieved by chance: 1990 Act s 18(c).

11 The accused product is manufactured by a German company, Stahlgruber, which is a major manufacturer of conveyor equipment. The respondent has been an importer and distributor in Australia of Rema Tip Top brand products obtained from Stahlgruber since 1975, although it stocked Tip Top products from 1973. The accused product is called Remagrip CK or Rema Tip Top CK2 Ceramic Lagging.

12 The respondent has admitted that since approximately April 1996, it has been offering for sale or supply and supplying, importing and/or arranging for the importation into Australia, of Rema Tip Top CK2 ceramic lagging. By 1 March 1996 Mr Langford, the

managing director of the respondent, had looked at the patents in suit. He sought advice from a patent attorney in Perth in relation to the patents. By a document styled "Declaration of Exemption" dated 1 March 1996 (Exhibit T), Stahlgruber indemnified the respondent in relation to sales or usage of the accused product if it was found to infringe one of the patents in suit. A brochure put out by the respondent and styled "Rema Tip Top CK2 Ceramic Lagging" describes different types of the product distributed by the respondent as being equivalent to a corresponding Belle Banne product with slight modifications. A price advantage is claimed for the respondent's product.

13 Even if the first and second patents are to be construed in the manner for which the applicant contends, infringement is denied. It will be necessary to return to the detail of the issue of infringement in due course.

Patent No 575408

14 The introductory part of the specification states that the invention relates to lagging material, and to a method of attaching that material to the surface of a pulley. The specification then sets out the prior art and its shortcomings. It is well known that the performance of pulleys is enhanced by increasing the friction between the conveyor belt and the pulley, and that lagging materials have been used for that purpose. However, those lagging materials often included metal backing plates and sheets which required specific attachment to the pulley. Replacement of that lagging was time consuming and expensive and it was often difficult or impossible to carry out replacement in situ. The lagging described in the Holz specification is given as an example.

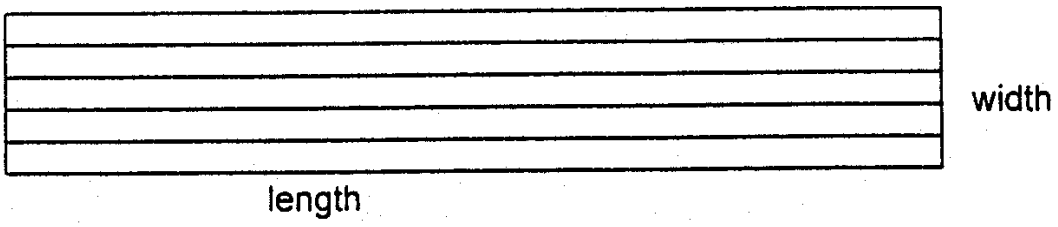
15 There is a substantial advantage if lagging, repair and relagging can take place in situ, that is, at the site of the operation. The substantial object of the invention is said to be the provision of a lagging material and a method of lagging whereby pulleys can be repaired and have lagging attached thereto in situ in a straightforward and efficient manner.

16 There follow two consistory clauses, the first of which describes the lagging material substantially in terms of claim 1; and the second of which describes the method of application of that material to a pulley substantially in terms of claim 13. That is in turn followed by a description of the invention by way of example and by reference to accompanying drawings.

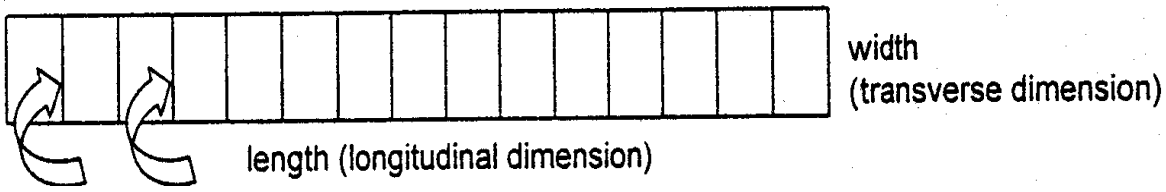
17 Sixteen claims defining the invention then follow. Claim 1 is as follows:

> *"Lagging material for application to the surface of a pulley, said material being in substantially elongate strip form; an upper surface thereof being formed of a predetermined pattern and including a plurality of longitudinally spaced-apart, elongate and transversely extending cutting sipes, defining raised portions therebetween; elongate trim lines being integrally formed or provided at each side of said cutting sipes."*

18 Both the Belle Banne lagging as manufactured and the accused lagging are configured such that grooves ("sipes") run along the length of the strip, rather than across the strip, as follows:



However, the respondent contends that the claim, and particularly the words "longitudinally spaced-apart, elongate and transversely extending cutting sipes" define a lagging material configured as follows:



The respondent contends that the grooves in the accused product are not longitudinally spaced-apart and transversely extending. They are the opposite: they are transversely spaced-apart and longitudinally extending.

19 In addition, there is a factual issue as to whether the accused product contains trim lines, and if so, whether they are located at each side of the grooves or sipes. As I have said, it will be necessary to return to the detail of the issue of infringement in due course.

20 Claim 13 is as follows:

> *"A method of lagging a pulley, with a lagging material formed in a generally elongate strip form; an upper surface thereof being formed of a predetermined pattern, said upper surface including a plurality of longitudinally spaced-apart, elongate and transversely extending cutting sipes*

defining raised portions therebetween; elongate trim lines being integrally formed or provided at each side of said cutting sipes; comprising feeding said elongate lagging material from a continuous roll and cutting same to a predetermined length such as to pass about an outer surface of said pulley; said material being cut transversely through at least one of said trim lines to achieve a desired length of material and achieve accurate coverage of said pulley surface, by said lagging material, and with ends of said material within an elongate sipe, abutting one against the other."

21 There is a dispute as to the method which this claim describes. According to the respondent, the claimed method is to roll the lagging out and cut it to the required length (the circumference of the pulley) through a trim line. A single sheet of lagging is then applied circumferentially around the pulley. According to the applicant lengths of lagging equivalent to the width of the pulley are cut off the roll (not using the trim lines) and are placed side by side around the face of the pulley. The last strip to be applied may, and probably will, be too wide for the remaining gap, and this is cut and trimmed along a sipe or trim line in order to secure a close fit. By that process a desired length of material covering the pulley surface is achieved.

22 The applicant originally contended that the respondent infringed the method claim by procuring and authorising purchasers and users of the respondent's product to infringe that claim. Particulars of infringement were handed up at the commencement of the hearing and received without objection. However, during the course of final submissions Mr Bannon SC, counsel for the applicant, elected not to pursue this part of the claim.

Strip lagging

23 Since well before June 1984, it was known in Australia that various materials had been used to lag pulleys and that there were various methods of applying lagging to pulleys. Traditionally, uncured rubber was applied in sheet form onto a pulley and then vulcanised (or hot bonded) onto the pulley under pressure in an autoclave. Lagging was also attached to the pulley by using bonding agents or by bolting. The advantage of using adhesives or bolting or other non-vulcanised methods, was that it was not necessary to have an autoclave, which was a specialist and expensive piece of equipment not adapted for use on site.

24 Since well before June 1984, it was also known in Australia that lagging could be applied to a pulley in strips placed either side by side across the face of the pulley, or circumferentially, around the pulley. A sheet of lagging could also be applied to the pulley

by use of an adhesive, but this often led to distortions, air bubbles and a less than perfect finish.

25 It was also known that if the lagging was grooved, it would prevent or reduce slip between the belt and the lagging (even when both were wet), by enabling the escape of water and providing a self cleaning feature. A number of grooving patterns were known including diamond and herringbone, and the pattern could be circumferential or longitudinal in the sense that the grooves could be cut circumferentially around the pulley, or across the pulley, parallel with the pulley shaft (Exhibit RWN-12, Sheet 2b of 5b).

26 "Elongate" describes lagging material which is longer than it is wide. In the applicant's submission the word "strip", when used in relation to lagging, refers to a piece of lagging which is designed to be applied to a pulley in conjunction with other like pieces of lagging. It is not an apt description to cover sheets of lagging up to 2 metres or 3 metres wide and several metres long being sufficient to fully cover a pulley, albeit the sheet may be longer than it is wide. In the respondent's submission "strip" is an ordinary English word. It simply means a piece which is narrow, ie the material is longer than it is wide. "Strip" adds nothing to "elongate".

27 Exhibit GR1 is a brochure published by the respondent. It describes products produced by the respondent as "strip lagging" or as "sheet lagging". It is stated (p 4):

> *"The use of lagging in strip form is a well established technology which has been used for many years and allows for ease of installation on on-site."*

28 Mr Rodd, an officer of the respondent, gave the following evidence as to the meaning of "strip" and "sheet" lagging (T 429-430):

> *"Mr Rodd, I think you have agreed that in GR1, which is the brochure you exhibited, there is a description of one product as sheet lagging and other products as strip lagging? --- That's correct.*
>
> *The distinction is between a product such as, which is sheet lagging which is designed to be applied to a pulley in a single piece. Is that correct? --- Yes, that's generally the case.*
>
> *That was your understanding as to how the term 'sheet' was being used in the GR1 Beltreco brochure? --- Yes, that's right.*

The reference to strip lagging in the GR1 brochure, as you understand it, is intended to refer to pieces of lagging designed to be used in conjunction with a number of other such pieces of lagging in order to cover the full surface of the pulley? --- That's correct.

In particular the ceramic strip lagging at Beltreco is designed to be used by applying a number of strips horizontally across the pulley and abutting each of those strips against each other so as to cover the full surface of the pulley. Is that right? --- That's, that's correct.

...

As you understand it, the Beltreco ceramic strip lagging is designed to be used by laying across the pulley a number of strips, firstly? --- Yes.

And to fill the last gap which is left when you get, after you've applied a number of strips by using narrower strips which are cut to size by cutting which takes place somewhere within the grooves of the strips? --- That's correct."

29 Annexure D to the affidavit of E A Barnes of 3 March 2000 is a table contained in a brochure produced by the applicant listing the number of 200mm wide strips of lagging required to lag a pulley, depending upon its diameter. The number of strips required range from 1 (diameter 50-67mm) to 20 (diameter 1211-1300mm), although application of rubber or ceramic lagging to pulleys having the very small diameters was said to be difficult and not recommended.

The views of the experts

30 The expert witnesses called by the applicant were Mr Clack and Mr Masters. Each deposed, and it is not disputed, that the accused product is in elongate strip form. Mr Clack, in his second report (Exhibit JC4), distinguished between lagging supplied in strip form, and sheets of lagging. Referring to the applicant's product as manufactured, he said (JC4 par 59):

"Strip lagging was a much more manageable product than sheet lagging. Sheets of rubber were cumbersome and heavy and required considerable skill and dexterity to apply to the pulley. Strips of lagging could be controlled much better. With the arrival of Belle Banne flexible strip lagging products, relagging a pulley became a task which an experienced workman could accomplish on his own."

31 Similarly, Mr Masters, in his second report, said (JM4 par 47):

> *"(i)* ***strip form****: in June 1984, the usual form of lagging products was as a large sheet, typically 2m x 2m. This was cumbersome and awkward even for an experienced workman to manipulate. Using strips (applied across the face of the pulley rather than circumferentially) meant that lagging a pulley face could be carried out in situ (see (iv) below) easily and by a single workman on his own.*
>
> *...*
>
> *(iv)* ***lagged in situ:*** *this was a feature which was highly advantageous. If a pulley had to be removed to be relagged, this was a time consuming, fiddley and expensive process. Relagging a pulley in situ meant that the conveyor belt need only be slackened off the pulley to enable access to part of the pulley face. Strip lagging (see (i) above) was the only truly convenient method of lagging a pulley in situ."*

32 Neither of the applicant's experts gave evidence to the effect that an ordinary skilled worker would understand "strip" as bearing a meaning other than its ordinary English meaning. Nor did either expert say, in terms, that the ordinary skilled worker would construe "strip", when used in relation to lagging, as referring to a piece of lagging which is designed to be applied to a pulley in conjunction with other like pieces of lagging. However, the sense in which these experts used the word "strip" throughout their evidence was consistent with the meaning which the applicant seeks to ascribe to the term "strip lagging".

33 The expert witnesses called by the respondent were Mr Norrish and Mr Wilson. According to Mr Norrish, prior to 1984, a common way of applying lagging was in strips placed either side by side across the pulley or circumferentially. He said (28/3/2000 par 14) that it has always been appreciated that it is easier to lag a pulley by applying a series of strips, rather than a single piece, of lagging rubber. Where strips are used, either applied circumferentially or parallel to the axis of the pulley, the number of joins is increased, and each join adds a further line at which the lagging can potentially lift off. In the context of the patent, in his view the terms "strip" and "elongate" both mean much the same thing: ie that the lagging is larger in one direction than in its cross direction. In his evidence-in-chief he gave it as his view that the method of lagging claimed is to apply a single strip of lagging (of the width of the pulley) circumferentially around the pulley. Depending on the size of the pulley, such strip may be quite large. The patents are not concerned with applying small narrow strips applied in parallel to the axis of the pulley, which is a method used to apply strip lagging before 1984.

34 In cross-examination, Mr Norrish gave the following evidence (T 312 lns 5-18):

"You understood back in 1984 that the expression 'lagging in strip form' referred to lagging which was designed to be used in conjunction with other like lagging in strip form in order to lag a pulley? --- Yes, I think so, yes.

Yet in giving your evidence in this case you choose to interpret the claims which referred to a method of lagging of applying a single piece of lagging the width of the pulley circumferentially around the pulley? --- That's my interpretation of the patent, yes.

And in so giving that evidence would you agree with me you are giving a meaning to the expression strip form in those claims which is different to the meaning which you would ordinarily have given it back in 1984? --- No, strip – a strip of lagging, if you like, can be a single piece of lagging and you can do that with small pulleys or it could be a couple of pieces of lagging and it depends on whether you wrap it around the pulley or you use, as you say, the slide lagging and put it across the pulleys."

At T 315 ln 25 - 316 ln 23 he gave the following evidence:

"And would you agree that looking at claim 1 on its own without regard to anything which appears on the pages before it, the expression elongate strip form would ordinarily suggest to you a piece of lagging which was designed to be used in conjunction with other pieces of lagging in order to achieve coverage of the pulley? --- It may be.

Well, it's not maybe, it's true, isn't it? --- There is nothing there that says it has to be one. There's nothing there that says it has to be two or more.

Except the expression 'strip form' suggested to you in 1984, or would have suggested to you in 1984, on its own, a piece of lagging which was designed to be used in conjunction with other such pieces of lagging? --- You could infer that, yes.

...

Is it your evidence to this court that having regard to what you've read in the whole of this document, the lagging material referred to in claim 1 should be interpreted as lagging material which is designed to be applied in a single piece across the full width of the pulley and around its circumference?

...

Your answer? --- Sorry, it can be inferred that, yes.

Well that's your evidence to this court, isn't it? --- Yes.

In order to come to that view, you would say to the court that you would have to interpret the word 'elongates (sic) strip form' differently to its ordinary meaning, by reference to what appears earlier in the document? --- Yes."

35 In Mr Wilson's evidence-in-chief (6/12/99 par 13) he said:

"In 1970 my business commenced the application of strip lagging to pulleys to avoid the cost of the labour intensive hand grooving of lagging applied in sheet form."

In other parts of this affidavit he refers to "strip lagging" in a sense which is consistent with the applicant's contentions. In par 72 he said:

"I understand that being in 'strip form' requires the lagging to be in the form of a strip which, in other words is to be relatively long and narrow. I understand a strip to be elongate by definition and that the addition of the word 'elongate' is therefore unnecessary and somewhat tautologous ..."

36 Mr Wilson gave the following evidence in cross-examination at T 478 lns 16-26:

"You've referred to the Gortread lagging as strip lagging? --- It is strip lagging, yes.

It's what you regarded in 1984 as lagging in strip form? --- That's right.

And you would have expect (sic) the industry to have interpreted strip form lagging as referring to lagging of a dimension such as the Gortread lagging? --- Yes, that's right.

By way of contrast would you agree that sheet lagging described lagging designed to be applied to a pulley in a single piece? --- Yes.

And not with other – I withdraw that. Whereas strip lagging was designed to be applied to a pulley in conjunction with a number of other strips, correct? --- Yes, I agree with that."

Then at T 478 ln 28 - 479 ln 8 he said:

"Now, you've given some views about the patent 575408? --- Yes.

I'll call that the Barnes patent and you agree that the claims all refer to lagging in strip form? --- No, I don't.

They use the expression strip form, don't they? --- Not that I can recall.

If the claims had used the expression strip form would that indicate to you that it would be lagging designed to be applied in conjunction with other such strips to completely lag the pulley? --- If they'd have used that term strip form, yes, strip lagging.

Do we take it that you've interpreted the claims on the basis that they don't use the expression strip form? --- Yes, I do."

In fact, of course, the claims do use the expression "in strip form".

37 At T 484 lns 3-20 Mr Wilson said:

"Can I ask you to go back to the text and turn to page 7. Sorry, perhaps before you do, could I direct your attention to page 11 and you will see claim 1 and the last word of the second line in claim 1 is strip and the next one is form. Do you see that? --- Yes.

As you told us a little while ago, lagging in strip form was understood by you in '84 as referring to lagging which was designed to be applied in conjunction with other strips to cover a pulley? --- That's right.

Lagging in strip form would not have suggested to you in '84 lagging which was designed to be applied circumferentially in a single sheet, would it? --- No.

I am not being critical, Mr Wilson, but just thinking now again about fine wine [?lines] *and the use of the words, strip form, that suggests to you doesn't it that this claim is talking not about lagging to be applied in a single piece around the pulley such as a sheet, but rather lagging with a type you know and recognise in the Belle Banne product? --- Yes, I concede to that.*

You agree with me? --- Yes.

When I say the Belle Banne product that's a product you are well familiar with? --- I know the material, yes.

Perhaps if I could have Exhibit A just to clarify and that's an example of a Belle Banne product you were referring to a moment ago, isn't it? --- Yes."

38 At T 524 ln 27 - 525 ln 3 he said:

"And lagging in strip form is something you've told us yesterday was an expression well understood in the industry in 1984 as describing what you would regard as strip lagging? --- That's right.

Which is not lagging applied in a single piece, is it? --- No, no.

So the introduction to the patent you agree is the patent saying: this is a system which has advantages in situ and it is lagging material in strip form, do you agree? --- Essentially, yes."

Industry usage

39 The notion or idea which is conveyed by the expression "strip lagging", or similar expressions, will depend upon, and may vary with the context in which the expression is used. However, persons engaged in the industry ordinarily use the expression, and did so in 1984, to describe a method of lagging a pulley whereby a strip of lagging is applied to a pulley in conjunction with other like pieces of lagging either across the face of the pulley or circumferentially around it. As Exhibit GR1 illustrates, the expression is used in the industry in contradistinction to "sheet lagging"; which involves the lagging of the pulley by the application of a single piece or sheet of lagging. All of the witnesses who referred to "strip lagging" or to variants of that expression, did so in a manner which is consistent with the notion or idea to which I have referred, although the context provided by the terms of the specification led the respondent's experts to assert that the word "strip", where used in the claims, is not confined to a piece of lagging designed to be used in that way, and that the method claim describes a process which is not strip lagging.

40 Whether the lagging method described by the expression "strip lagging" enables a particular piece of lagging to be distinguished from another on the basis that one is a "strip", and the other is a "sheet" is a more difficult question. Whether one or more pieces of lagging, (strips or sheet) will be required to lag a pulley depends upon the size of the pulley in question. As the table referred to above illustrates, a strip of lagging may be sufficient to cover entirely a pulley having particular dimensions, but be insufficient to cover a pulley of greater dimensions unless used in conjunction with other strips. On the other hand, the dimensions of a pulley may be such that more than one sheet is required to lag it (see Kurosinski 28/3/00 at [6]). There is a difficulty in approaching the characterisation of lagging by whether or not multiple pieces are to be applied, because this may lead to a definition which is not based on the material itself, but on the particular purpose for which the material is to be used in given circumstances. But to say that is not to deny the proposition that persons in the industry regard "strip lagging" and "sheet lagging" as describing different lagging techniques and materials and did so in 1984: (see eg Norrish T 314 lns 5-10):

> *"So if someone in 1984 had come to you and you hadn't read this patent, and said 'I'm about to lag a two metre wide pulley with a single piece of lagging material and wrap it around circumferentially', you would not have described that lagging as lagging in strip form in 1984, would you? --- I'd call it sheet form if you like, back in '84."*

The complete after provisional specification ("AU-A")
The AU-A

41 The AU-A provides that it was an object of the invention to provide a lagging material in roll form which might be applied in longitudinal strips across a pulley in situ. The tread pattern on the face of the material is provided with longitudinal trim lines to facilitate the trimming of the last strip applied to the surface of the pulley so that the last edge neatly abuts the edge of the first strip applied.

42 The specification included the following:

: *"Lagging material in roll form which may be applied in longitudinal strips across a pulley"* (p 3 lns 5-6),

: *"Preferably, the lagging material is provided in relatively narrow strips"* (p 4 lns 9-10),

: *"The longitudinal length of the face of the pulley (sometimes referred to as the width of the pulley) is determined and the technician can simply cut measured lengths of lagging off the rolled strip and edge-butt adhere same to the prepared surface. The last strip to be applied to the surface of the pulley is invariably too wide for the remaining gap. However by virtue of the inventive trim lines provided in the tread pattern, the technician merely has to select the appropriate longitudinal trim line in the appropriate number of strips and sever the excess material, to enable a close butt fit of the trimmed strip with the first strip applied"* (p 6).

43 The AU-A included a method claim, and a material claim as follows:

> *"1. A method of lagging a pulley comprising affixing longitudinal strips of appropriate lagging material to the surface of a pulley, said lagging being fed to the workd* [sic] *from a continuous roll and cut to length in situ as required, said lagging being provided with a pattern which includes preformed longitudinal trim lines positioned to facilitate the removal of excess width of the lagging from the final strip applied to the face of the pulley.*
>
> *2. Lagging material for application to the surface of a pulley, said lagging material being in strip form provided in a continuous roll, said lagging being adapted to be fed to the work and cut to length in situ as required, said lagging being provided with a pattern which includes preformed longitudinal trim lines positioned to facilitate the removal of excess width of the lagging from the final strip applied to the face of the pulley."*

44 The claim in the AU-A which most closely approximates claim 1 in the patent as granted is claim 6, which is as follows:

> *"Lagging material for application to the surface of a pulley, said lagging being provided with a pattern which includes preformed longitudinal trim lines positioned to facilitate the removal of excess width of the lagging from the final strip applied to the face of the pulley."*

45 Thus the AU-A clearly described and claimed an invention the elements of which included:

- lagging applied in strips across the face of the pulley;
- lagging material with trim lines running along the length of the strip to facilitate the removal of excess width from the final strip.

46 Whilst the applicant contends that these elements are disclosed and claimed in the patent as granted, the wording which clearly disclosed and claimed those elements in the AU-A was changed when the alterations were made to the specification in mid 1988.

The specification: lagging material in elongate strip form

47 The specification (p 3) states that the invention sets out to provide a lagging material, and a method of lagging, which can be applied in situ, in a straight-forward and efficient manner. Mr Norrish (T 355 ln 25) and Mr Wilson (T524 ln 25) both agreed that lagging by use of a single piece of lagging is not conducive to lagging in situ. Thus a skilled worker reading p 3 would not think that "elongate strip form" was describing the application of a single sheet of lagging as the solution to **in situ** lagging difficulties.

48 The first mention of "elongate strip form" is on pp 3 and 4 of the specification in the two consistory clauses which, as earlier indicated, are substantially in terms of claim 1 and claim 13. The first of those clauses describes the lagging as being "in substantially elongate strip form", but without further relevant elaboration.

49 The second consistory clause describes:

> *"... a method of lagging a pulley, with a lagging material formed ... [as per claim 1] ... comprising feeding elongate lagging material from a continuous roll and cutting same to a predetermined length such as to pass about an outer surface of said pulley; said material being cut transversely through at*

least one of said trim lines to achieve a desired length of material and achieve accurate coverage of said pulley surface with said lagging material, and with ends of said material within an elongate sipe, abutting one against the other."

This clause describes the method of applying the product in claim 1. Taken in isolation this clause suggests that the cutting sipes and trim lines run in a direction which is perpendicular to the longitudinal axis of the lagging (so enabling the predetermined length to be cut from the roll through a trim line) and that a single sheet of material is applied circumferentially about the pulley (because the cut length passes about, and covers the pulley surface, with the ends abutting each other). The AU-A referred to the longitudinal strips being applied "across a pulley", rather than such as to "pass about" the outer surface of the pulley.

50 Other parts of the specification provide support for the notion that the method is to cover the pulley with a single sheet of material. Thus on p 5 it is stated:

"The present invention provides a lagging material which is provided in substantially elongate strip form and which is formed on an upper surface thereof, with integral elongate sipes and trim lines, so that the elongate strip material can be cut to predetermined or desired lengths, such as for passing around the outer surface of a pulley, by cutting along or through the elongate sipes and/or trim lines."

And on p 8 it is stated:

"The present invention provides for a method of attaching lagging 12 to a pulley, and in particular the attaching of lagging in situ, following the removal or stripping-off of worn lagging. As referred to hereinbefore, the lagging 12 is in one preferred form of the invention provided in a roll form, and the desired or predetermined length of lagging 12 can be rolled from that roll (not shown). The lagging is then extended around the outer surface of the pulley and cut to the desired length, by using the elongate sipes 19 and trim lines 18. The free ends of the lagging 12 are then abutted against one another such as at 50, and appropriate bonding agents or adhesives used to attach the preferably buffed underside 15 of the lagging to the outer surface of the pulley."

51 On the other hand at p 8 ln 27 – 9 ln 3 there is a statement of the method which describes the lagging of the pulley by the application of strips of lagging across the face of the pulley. The relevant passage is as follows:

"The longitudinal length of the face of the pulley, sometimes referred to as the width of the pulley, is in use determined and a user or technician can simply cut measured lengths of lagging off the rolled strip, and edge-butt adhere same to the prepared surface. The last strip to be applied to the surface is invariably too wide for the remaining gap, however the provision of the sipes

19 and trim line 18 allows for the cutting or trimming of the length of lagging 12 so as to avoid wastage and enable a close butt fit between ends of the lagging 12."

The drawings

52 The invention is described as on p 4 and following "by way of example" only, and by reference to the accompanying drawings. The first such drawing is Fig 1, as follows:

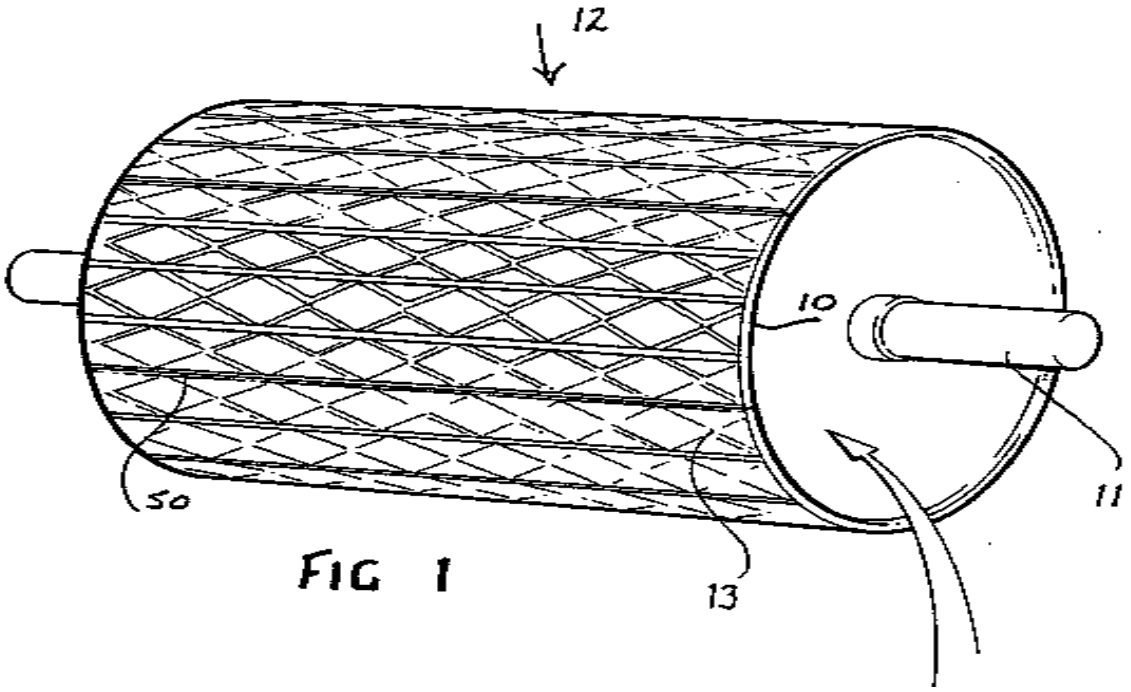


FIG 1

53 Figure 1 is described (p 4) as a perspective view of a pulley having "a strip" of lagging applied to it. The respondent contends that Fig 1 shows only one piece or sheet of lagging applied circumferentially around the pulley. The applicant contends that it shows one strip of lagging applied across the face of the pulley, with four raised portions between two joins signified by the three lines drawn closely together. One set of lines is indicated by the Fig 50, although two sets clearly appear.

54 Fig 1 is described in the body of the specification as follows:

"Referring now to Fig. 1 of the accompanying drawings, a pulley 10 is provided having a spindle 11. A length of lagging 12 is applied to the outer surface of the pulley 10, the lagging being premoulded and supplied in strip form, preferably from a roll. This then allows the lagging 12 to be taken from the roll (not shown) and cut to predetermined or desired length, by using the cutting sipes 19 and trim lines 18, so that the outer surface of the pulley 10 is covered by the lagging 12 without waste material, and in a cost and time efficient manner."

55 Fig 1a is described as an exploded view of a section of the lagging shown in Fig 1. Fig 1a is as follows:

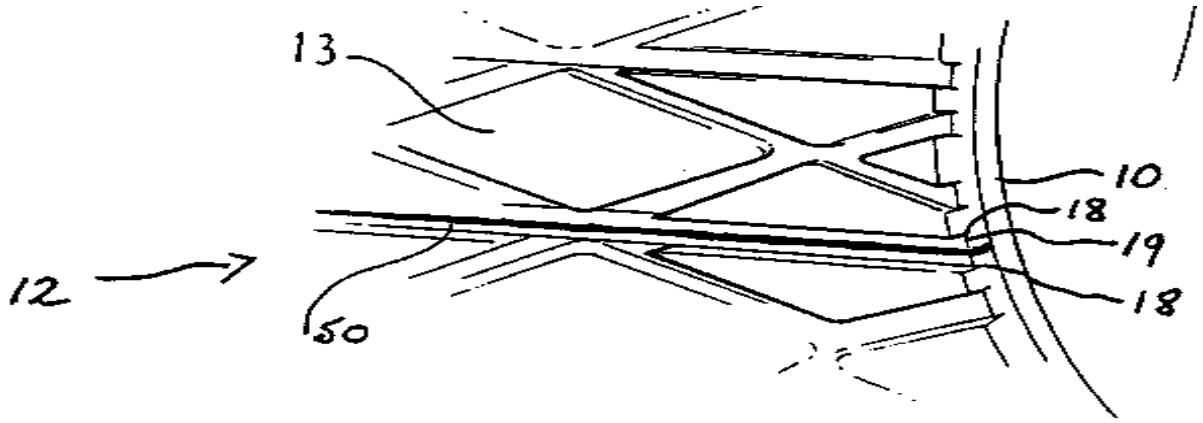


FIG 1a

56 At 7 the following appears:

> *"As shown in Figs 1 and 1a of the accompanying drawings, the length of lagging 12 can, for example, be cut transversely through the elongate transverse sipe 19, so that the ends of the lagging 12 as extending about the pulley 10 can abut neatly and securely as at 50."*

57 Fig 2 is described on p 4 as a cross-sectional view of lagging material according to one form of the invention (the words in brackets can be disregarded because there are no lines A-A on any of the drawings). Fig 7 is described on p 5 as a cross-sectional view of lagging to which a plurality of tiles have been attached.

58 Figures 2 and 7 are as follows:

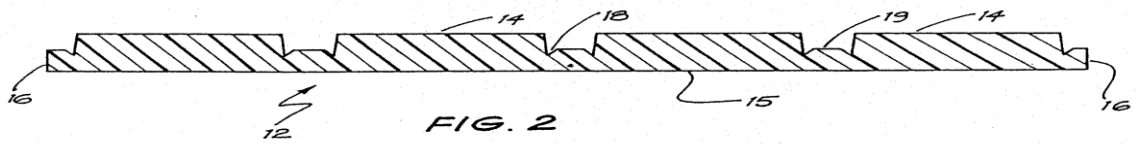


FIG. 2

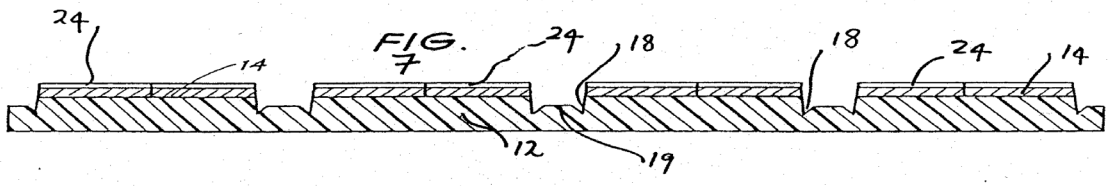


FIG. 7

59 At pp 7-8 the following appears:

> *"A tread pattern such as 13 is shown as being provided between the spaced-apart sipes 19, the sipes 19 and trim lines 18 (to be described further hereinafter), extending transversely across the strip of lagging 12, relative to the longitudinal axis thereof.*
>
> ...
>
> *As shown in the accompanying drawings, the lagging 12 is formed in an elongate strip, with a plurality of generally transversely extending elongate sipes 19, which extend down into the material of the lagging 12 and form the raised portions 13 and 14. At the side of each side 19 is an indent or recess, in the form of an elongate trim line 18, the sipes 19 and trim lines 18 allowing for the length of material to be cut to a predetermined or desired length so that free ends thereof (such as for example at 16) can be abutted against each other so as to join about the outer surface of the pulley, such as at 15 in Fig. 1 and 1a of the accompanying drawings."*

The specification: "longitudinally spaced-apart, elongate and transversely extending cutting sipes".

60 The proper construction of this phrase ("the collocation") is at the heart of the difference between the parties, because the collocation serves to identify the location and orientation of the cutting sipes which, in the applicant's submission run parallel to the longitudinal axis of the strip of material, whereas in the respondent's submission they run in a direction perpendicular to that axis. The debate as to whether "strip" is confined in the manner for which the applicant contends is primarily of significance for such light as its resolution may throw on the direction and orientation of the sipes.

61 It may be noted that the sipes 19 and trim lines 18 as shown in Fig 2 and Fig 7 run parallel to the longitudinal axis of the strip; they are "longitudinally extending". Yet they are described in the body of the specification as extending "transversely across the strip ... relative to the longitudinal axis" or as "transversely extending elongate sipes".

Expert commentary on drawings

62 Mr Clack (T 286 ln 26 – 287 ln 3) rejected the proposition that Fig 1 showed a single piece of lagging applied circumferentially around the pulley. In his view, Fig 1 shows two joins, as indicated by the two sets of three lines, even though one set only is designated by the number 50. Whilst he described the collocation as "a bit clumsy", when considered with the

figures it was obvious to him (T 277 lns 25-27) that it described and claimed a product whose sipes ran in the manner of the manufactured products, Exhibit A and J.

63 Mr Wilson (T 480 lns 2-5) and Mr Norrish (T 343 ln 3) agreed that Fig 1, if considered without reference to the texts, disclosed a section of lagging consisting of four raised portions between two joins. However, at T 350 lns 20-23 Mr Norrish "inferred" that Fig 1 showed the lagging going around the pulley. Mr Norrish resolved what he saw as the inconsistency between the text and the drawings, by treating the second, unnumbered join, as a "drawing error" (T 343 ln 9). In his view, the drawings were "basically unclear" (T 351 lns 10-11) which, in context, conveys that Fig 1 is unclear as to whether strips of lagging are applied across the face of the pulley, or a single piece or sheet applied circumferentially around the pulley.

64 The elongate strips 12 shown in Figs 2 and 7 cannot be regarded as full coverage single pieces. As Mr Norrish said at T 352 lns 14-16:

> *"The only way you could lag a pulley with a portion shown in Figure 2 would be to edge butt a series of strips in the way that has been done for the pulley in court? --- Yes, if you take it literally. Yes."*

Again, Mr Norrish reconciled Fig 2 with the text on the basis that there was 'draftsman's licence' in the preparation of Fig 2 and it should be treated as if it showed a part of the length of lagging (extending from 16 – 16) even though the well known drafting technique of showing a larger piece in a shorter space on the page by use of a broken wavy line (cf Fig 3) had not been employed. This explanation is inconsistent with his acceptance of the proposition (see [65] below) that the length of the elongate strip shown in Fig 2 is the imaginary line into the depth of the page and coming out of the page.

65 The sipes shown in Figs 2 and 7 clearly run parallel to the lengthwise dimension of the strips of lagging depicted in these drawings. The sipes are longitudinally extending. Both Mr Norrish and Mr Wilson accepted this to be so. At T 343 ln 24 Mr Norrish said:

> *"... figure 2* [when read with Fig 1 – see T 344 ln 21] *shows a cross section of a piece of lagging which is elongate in the sense that the lengthwise dimension of the elongate strip is the line or the imaginary line into the depth of the page and coming out of the page? --- Yes."*

And at T 486 ln 16 Mr Wilson said:

> *"Because you see figure 2, don't you, as a cross section of a piece of lagging the lengthwise dimension of which is along an imaginary line which proceeds into the page and out of the page? --- Yes.*
>
> *And what you see figure 19 and figure 2 is pointed to is a groove which runs parallel with the longer dimension of the - - -? --- Of that strip, yes."*

Both Mr Norrish and Mr Wilson regarded the sipes shown in Figs 2 and 7 as longitudinally extending. Insofar as the body of the specification described them as transversely extending, the text is at odds with the drawing.

66 Mr Norrish accepted (T 346) that all of the drawings of the lagging itself (Figs 1, 1a, 2, 3, 4 and 7) were consistent with each other. So did Mr Wilson (T 483 ln 22). Each shows in one way or another a strip of lagging such as Exhibit A (ie sipes longitudinally extending). There is no drawing which shows a narrow strip of lagging with the sipes running across the strip, in the sense of perpendicular to the horizontal axis. That is, the specification does not contain any drawing in the form of the second drawing shown in par 18 above.

67 The specification includes a number of mistakes in relation to the drawings. Mr Norrish referred to the fact that the description of Fig 2 (p 4) makes reference to lines A-A of Fig 5 of the drawings. Figure 5 appears to be the cross-sectional view of Fig 6 rather than the lagging and has no line A-A. Figure 6 is referred to as a cross-sectional detail drawing of a ceramic tile. It seems not to be a cross-sectional view, but rather a plan view of a tile. Counsel for the respondent listed other errors during the course of his submissions, many of which were trifling in nature. In some cases, whether there was an error is debatable, and it was not always easy to tell whether the error lay in the drawing, or in the description of the drawing.

68 In the respondent's submission the inconsistencies, misdescriptions and errors in the drawings are such that the drawings are not a reliable source of information. None of the experts went so far in giving their evidence, although Messrs Norrish and Wilson preferred the text where the drawings gave a contrary indication to that provided by the text.

69 The primary significance of the drawings lies in the information which they convey as to whether lagging is effected by a number of strips of material, or by a single piece, and as to the direction and orientation of the sipes. The identified errors do not directly bear upon those matters, and I am not prepared to conclude that the errors are indicative of general

unreliability in the drawings as a source of information, absent specific expert evidence to that effect.

Some principles of construction

70 A patent is a public instrument which grants the right to protection of a defined monopoly, for the consideration of the disclosure of the invention to the general knowledge base of society. It is the need for balance between these symbiotic, yet competing interests which underscores the rules of patent construction.

71 Section 40 of the 1990 Act relevantly provides that a complete specification must describe the invention fully, that it must end with a claim or claims describing the invention and that the claim or claims must be clear and succinct, and fairly based on the matter described in the specification.

72 Further, to be valid the patent must define a monopoly in such a way that it is not reasonably capable of being misunderstood: *Martin v Scribal Pty Ltd* (1954) 92 CLR 17 at 59, *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 at 610, *Populin v HB Nominees Pty Ltd* (1982) 41 ALR 471 at 476, *Fisher & Paykel Healthcare Pty Ltd v Avion Engineering Pty Ltd* (1991) 103 ALR 239 at 255, *Decor Corporation Pty Ltd v Dart Industries Inc* (1988) 13 IPR 385 at 400.

73 When determining the nature and extent of the monopoly claimed, the specification must be read as a whole. But as a whole it is made up of several parts, and those parts have different functions: *Welch Perrin* at 610, *Decor* at 391, 398. The claim, cast in precise language, marks out the legal limits of the monopoly granted by the patent. What is not claimed is disclaimed : *Walker v Alemite Corporation* (1933) 49 CLR 643 at 656, *Electric & Musical Industries Ltd v Lissen Ltd* (1939) 56 RPC 23 at 35 and 39. The specification describes how to carry out the process claimed and the best method known to the patentee of doing that.

74 Hence, although the claims are construed in the context of the specification as a whole, it is not legitimate to narrow or expand the boundaries of monopoly as fixed by the words of a claim, by adding to those words glosses drawn from other parts of the specification : *Welch Perrin* at 610, *Decor* at 391, 398, *Braas & Co GmbH v Humes Ltd* (1993) 26 IPR 273 at 284. If a claim is clear and unambiguous, it is not to be varied, qualified or made obscure by

statements found in other parts of the document. (*Welch Perrin* at 610, *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461 at 478-479, *Electric & Musical Industries* at 41, *Rosedale Associated Manufacturers Ltd v Carlton Tyre Saving Co Ltd* [1960] RPC 59 at 69, *Cooper Industries Inc v Metal Manufactures Ltd* (1994) 29 IPR 106 at 113, *Lantech Inc v First Green Park Pty Ltd* (1995) 31 IPR 327 at 333).

75 It is legitimate, however, to refer to the rest of the specification to explain the background to the claims, to ascertain the meaning of technical terms and resolve ambiguities in the construction of the claims. Where the language of the claim is "obscure or doubtful" (*Martin v Scribal* at 97 per Taylor J) the doubt was sometimes resolved by referring to words in the body of the document to explain it. (See *Welch Perrin* at 610-611; *Electric & Musical Industries* at 41-42, *Interlego* at 478-479, *Decor* at 400, *Melbourne v Terry Fluid Controls Pty Ltd* (1994) 28 IPR 302 at 308, *Freeman v T J & F L Pohlner Pty Ltd* (1994-1995) 30 IPR 377 at 383-384, *Sartas No 1 Pty Ltd v Koukourou & Partners Pty Ltd* (1994-1995) 30 IPR 479, 486).

76 In *Decor* at p 410, Sheppard J rejected the notion that the claims are first to be construed without reference to the body of the specification, and it is only if ambiguity is exposed by that process that reference to the body of the patent is permissible. In his Honour's view, that approach ignores the "fundamental rule of construction" that the specification must be read as a whole, and the modern approach to interpretation, which requires that the context be considered in the first instance, and not merely at some later stage when ambiguity might be thought to arise. In addition, Sheppard J enunciates that "if there is disclosed in the specification an intention on the part of the draftsman that words used elsewhere are to have a particular meaning, that meaning must be given those words because the draftsman has used his own dictionary" (Sheppard J at 410-411).

77 The decision of Aickin J, in *Minnesota Mining & Manufacturing Co v Beiersdorf (Australia) Ltd* (1980) 144 CLR 253 exemplifies that approach. Focussing on the "essence of the invention" (at 267), Aickin J proceeded to construe various terms in the claim which were in dispute. In the course of so doing, his Honour made repeated reference to the body of the specification in order to understand the context in which words had been used. His Honour did this even though the specification did not provide a "dictionary" for such terms, and

without first making a finding that any of the terms or questions were ambiguous. At 272 his Honour said:

> *"This is not a case where the specification supplies its own dictionary meaning but it is legitimate to look at the specification to see whether it shows the word to have been used in some special sense. In fact it shows that it was not so used."*

78 I do not think that there is any conflict between the decision of Sheppard J in *Decor* and the other authorities to which I have referred. Sheppard J's distillation of the rules of construction at p 400, and in particular rule 5, make that clear. Rather, as I read his Honour's decision, he was seeking to convey that one reads the specification as a whole as part of the process of determining whether the terms of the claims are clear and unambiguous, or to use the language of the High Court in *Interlego* at 478-479, whether only one particular meaning is "necessarily" conveyed by the expression in question.

79 Once purely verbal or grammatical questions have been resolved according to ordinary principles of construction, there is no residual uncertainty as to the extent of the monopoly claimed: *Welch Perrin* at 610. However, it is open to a court to conclude that the terms of a specification are so ambiguous that its proper construction must always remain a matter of doubt in which case the patent is invalid (*Martin v Scribal* at 59), subject, perhaps, to the possibility of amendment under s 105 of the 1990 Act. In the present case, it was common ground that if I came to the conclusion that I was unable to choose between the competing constructions of the patent advanced by the applicant and the respondent, I should make a finding to that effect, but should afford the applicant the opportunity to make application under s 105.

80 In *Blanco White, Patents for Inventions* (5th Edn) at 4-701 the matter is put in this way:

> *"... Thus a claim is bad if no reasonably certain construction can be given to it, or it is fairly and equally open to diverse meanings. But the rule goes further than this. A court is not bound to find a meaning for a claim, nor to approach a claim with the 'conviction that its language is capable of a reasonable construction when carefully examined' that is the due of an Act of Parliament. Thus a claim may be bad for uncertainty although the court could find its true meaning (and would do so if the words concerned appeared in a commercial contract) if it is so obscure that 'its proper construction must always remain a matter of doubt'. On the other hand, what matters is not the grammar of the claim, but whether a reader would be left in doubt whether any given apparatus or method fell within the claim or not; the purpose of the*

rule is to enable the public to rely upon the words of the claim as defining the rights of the patentee. Accordingly, a mere grammatical ambiguity, not affecting the scope of the monopoly, will not invalidate.

Thus far, the rule is clear; but it is not an easy rule for the practitioner to apply. The difficulty lies in deciding just how much doubt as to the meaning of a claim will invalidate it; for the standard of clarity required by the courts changes markedly from time to time. In the past, the standard of clarity required has indeed been put as high as this, that there must be 'no serious difficulty' in construing the claims, and that the claims must be capable of construction by rival manufacturers without the assistance of experienced counsel. Claims have, however, habitually been held valid, by all courts, that could not pass such a stringent test. Certainly a claim is not invalid merely because it might have been better drafted, nor merely because the patentee puts forward a construction that the court is not prepared to adopt; nor merely because it is capable of more than one construction, even though it be difficult to decide which is the right one."

81 Other principles of construction which may be of assistance in the resolution of the present matter include:

- A patent specification should be given a purposive construction rather than a purely literal one: *Catnic Components Ltd v Hill & Smith Ltd* [1982] RPC 183, per Diplock LJ at 243, cited in various Australian cases including *Decor* at 400 – Rule (6); although it is noted by Gummow J in *Nicaro Holdings Pty Ltd v Martin Engineering Co* (1989-1990) 16 IPR 545 at 560-561, that a purposive approach was adopted in the pre-*Catnic* decision of *Commonwealth Industrial Gases Ltd v M W A Holdings Pty Ltd* (1970) 44 ALJR 385 at 388.

- The hypothetical addressee of the patent specification is the non-inventive person skilled in the art before the priority date (*Welch Perrin* at 610, *Populin* at 476, *Fisher & Paykel* at 254, 260, *Decor* at 397, *Stanway Oyster Cylinders Pty Ltd v Marks* (1996) 66 FCR 577 at 582-583). The words used in a specification are to be given the meaning which the hypothetical addressee would attach to them, both in the light of his own general knowledge and in the light of what is disclosed in the body of the specification: *Decor* at 391 – per Lockhart J.

- There is a fine line between, on the one hand, reading down the words of a patent claim to reflect how a person skilled in the art would understand it in a practical and commonsense way, and, on the other hand, impermissibly

limiting the clear words of a claim because a reader skilled in the art would be likely to apply those wide words only in a limited range of all the situations they describe: *Stanway Oyster Cylinders* at 585 – per Drummond J.

- It is permissible for an invention to be described in a way which involves matters of degree. Lack of precise definition in claims is not fatal to their validity, so long as they provide a workable standard suitable to the intended use: *Stanway Oyster Cylinders* at 585; *Minnesota Mining* at 274. The consideration is whether, on any reasonable view, the claim has meaning (*Elconnex Pty Ltd v Gerard Industries Pty Ltd* (1991) 32 FCR 491 at 512-513, *Tye-Sil Corp Ltd v Diversified Products Corp* (1991) 20 IPR 574 at 585). In determining this, the expressions in question must be understood in a practical, commonsense manner (*Nesbit Evans Group Australia Pty Ltd v Impro Ltd* (1997) 39 IPR 56 at 95, *Martin Engineering Co v Trison Holdings Pty Ltd* (1989) 14 IPR 330 at 338). Absurd constructions should be avoided (*Stanway Oyster Cylinders* at 582-583) and mere technicalities should not defeat the grant of protection (*Tye-Sil* at 585).

- As a general rule, the terms of a specification should be accorded their ordinary English meaning: *Electric & Musical Industries* at 41, *Elconnex* (1991) 32 FCR 491 at 512-513, *Interlego* at 478, *Minnesota Mining* at 270.

- Evidence can be given by experts on the meaning which those skilled in the art would give to technical or scientific terms and phrases and on unusual or special meanings given by such persons to words which might otherwise bear their ordinary meaning : *Sartas No 1 v Koukourou* at 485-486, *N V Philips Gloeilampenfabrieken v Mirabella International Pty Ltd* (1993) 26 IPR 513 at 531-532, *Leonardis v Sartas No 1 Pty Ltd* (1996) 67 FCR 126 at 137-138, *Patent Gesellschaft AG v Saudi Livestock Transport and Trading Co* (1996) 33 IPR 426 at 455.

- However, the construction of the specification is for the Court, not for the expert witness. Insofar as a view expressed by an expert depends upon a reading of the patent, it cannot carry the day unless the Court reads the patent in the same way: *Allsop Inc v Bintang Ltd* (1989) 15 IPR 686, 697. See also

Glaverbel SA v British Coal Corporation [1994] RPC 443 at 486, *Sartas No 1 v Koukourou* at 485-486, *Patent Gesellschaft* at 455.

- Section 116 of the 1990 Act provides that the Court may, in interpreting a complete specification, refer to the specification without amendment. However, it is neither useful nor legitimate to do so where the amended specification is clear: *Martin and Biro Swan Ltd v H Millwood Ltd* [1956] RPC 125 at 135.

Drawings

82 *Terrell on the Law of Patents* (14th Edn) at 5.119 states as follows:

> *"Discrepancies in drawings*
>
> *The result of there being a discrepancy between the printed matter and the drawings depends upon whether the discrepancy produces ambiguity sufficient to mislead. If what is meant is clear to persons skilled in the art, then the specification is not ambiguous, and it is immaterial from which part of the specification they have drawn their information. If there is material ambiguity, the patent is invalid."*

83 *Knight v Argylls Ltd* (1913) 30 RPC 321 was a case in which the drawings attached to the specification were so defective "that even the inventors' counsel [had] not a good word to say for them" (at 347). If the imperfections in the drawings made the specification misleading as a whole then the patent is invalid. The issue is whether the specification, including the drawings, is intelligible to the ordinary workman conversant with the subject matter. At 348 Hamilton LJ said that the level of puzzle produced by the drawings (which showed the operating mechanism in the reverse of the proper position, the ports disadvantageously spaced, and erroneous dimensions) was not one which reference to the specification would promptly solve. The patent was thus invalid because the specification was misleading.

84 Drawings must be looked at through the eyes of the typical addressee of the specification, namely the kind of person who would be expected to make an apparatus of the kind the subject of the patent: *Nicaro* at 579; *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 28 IPR 481, 500; *Freeman v Pohlner* (1994-1995) 30 IPR 377, 384. In *Nicaro* Gummow J rejected an invitation to construe a drawing without the assistance of evidence from a skilled addressee. His Honour also noted that the appellant's submissions in that case invited the Court to discern from the drawing something to which the patentee did not attach sufficient

significance to identify by number so as to pick up the body of the specification (cf the unnumbered join referred to in par 53 above).

85 An invention may be disclosed by a drawing: *Société Des Usines Chimiques Rhône-Poulenc v Commissioner of Patents* (1959) 100 CLR 5 at 11. A claim may be fairly based on matters disclosed in an earlier specification if the disclosure is effected by means of a drawing, although the words, if taken alone, would not provide it: *Leonardis v Sartas No 1*. A conclusion that something is disclosed by an earlier patent necessarily involves the interpretation of that patent, and it follows from *Leonardis* that drawings may play a part in that interpretation.

86 Patent drawings are not designed to illustrate precise measurements unless so stated. They are there to illustrate the concept and the overall relation of the parts: *Leonardis* at p 136. At 137 the following statement by Abbott CJ was quoted with approval:

> *"An inventor of a machine is not tied down to make such a specification, as, by words only, would enable a skilful mechanic to make the machine, but he is allowed to call in aid the drawings which he annexes to the specification; and if, by a comparison of the words and the drawings, the one will explain the other sufficiently to enable a skilful mechanic to perform the work, such a specification is sufficient."*

87 Thus in the interpretation of the specification regard is to be had to both the words and the drawings. The drawings may disclose matter not described by the words, and the drawings may be used to help explain the words just as much as the words may be used to help to explain the drawings. It would be consistent with ordinary cannons of construction to endeavour to give a consistent and harmonious construction to the disclosures made by each. One would not lightly conclude that the written word, and the drawings, are describing two different things: cf Norrish T 347 ln 25.

88 *Leonardis* at p 137 also confirms that a court may need expert assistance in order to interpret a drawing, but there is no rigid rule that this is necessarily the case. Whether expert assistance is required depends upon the particular issue and the particular drawing.

Claim 1 – the product claim

89 Against that background it is necessary to return to the terms of claim 1. That claim can be broken down into the following elements:

(a) lagging material for application to the surface of a pulley,

(b) being in substantially elongate strip form,

(c) an upper surface thereof being formed of a predetermined pattern, including a plurality of ... cutting sipes [which are]:

(i) longitudinally spaced-apart;

(ii) elongate; and

(iii) transversely extending.

(d) raised portions between cutting sipes,

(e) elongate trim lines, integrally formed or provided at each side of the cutting sipes.

(a) Lagging material for application to the surface of a pulley

90 This element was not the subject of controversy and it calls for no particular comment except, perhaps, to note that the product claim is for lagging material **for application** to a pulley. It describes the material prior to its application to the pulley, rather than by reference to its appearance after application to a pulley.

(b) Being in substantially elongate strip form

91 "Elongate" and "strip" are ordinary English words. Neither is a term of art. "Elongate" means to increase in length, and describes something which is longer in proportion to its breadth. "Strip" signifies a long narrow piece of material of approximately uniform breadth. "Elongate" and "strip" describe essentially the same concept: material is in elongate strip form if it is longer than it is wide. Neither side submitted that "substantially" was of relevance, let alone the source of a problem.

92 Although the particulars of invalidity allege that the expression "elongate strip form" is unclear, it was not submitted that there is any invalidating lack of clarity if the expression, where used in claim 1, bears its ordinary meaning of a piece of lagging longer than it is wide. However, the elongate strip of material is for application to the surface of a pulley, and the applicant sought to derive from that context, and from the common understanding in the industry of the notion of strip lagging, a more confined meaning to the word "strip" as

describing only a piece of lagging designed to be applied to a pulley in conjunction with other like pieces of lagging.

93 The respondent denied that the expression could, by any legitimate process of construction, be confined in that way. If resort to the body of the specification is appropriate, in the respondent's submission the specification, and particularly the description of the method claim, indicates that a single piece of lagging is to be applied circumferentially around the pulley so as to fully cover it. That negates the contextual confinement on which the applicant relies.

94 The claim does not use the expression "strip lagging". "Material for application to the surface of a pulley ... in substantially elongate strip form" would, as a matter of ordinary English include lagging designed to be applied to a pulley in conjunction with other like pieces, but the expression would not, as a matter of ordinary English, be confined to lagging adapted for use in that way. It may not always be easy to tell whether or not particular lagging is adapted for use in that way. The problem is compounded because the suggested confinement is not based on the lagging material itself, but on the particular purpose for which the material is to be used in given circumstances.

95 The AU-A described lagging to be applied in longitudinal strips across the pulley face, preferably in relatively narrow strips. But these limiting expressions were deleted by the amendments in favour of the broader description "in substantially elongate form". It is difficult to treat the description "material for application to the surface of a pulley in elongate strip form" as being impliedly confined to strips of the type referred to in the specification prior to its amendment, when that specification was amended to delete the limiting words, in favour of more general terms.

96 Even if I were to conclude that the descriptions of the invention appearing on pp 4 and following of the specification, and the drawings, described strips of lagging designed to be applied to a pulley in conjunction with like pieces, that fact could not limit the words of the claim if only because the descriptions are given by way of example only. What is described may be the usual way in which elongate strips would be applied to lag a pulley, but that provides an insufficient foundation for confining "material for application to the surface of a

pulley ... in elongate strip form" so as to encompass only what is within the illustrations: cf *Stanway Oyster Cylinders* at p 585 (par 81 above).

97 I therefore conclude that one cannot confine the words of the claim in the manner for which the applicant contends. In coming to that conclusion, it has not been necessary to consider whether the terms of the method claim, and the descriptions of the method, are inconsistent with the suggested limitation inasmuch as they convey that a single piece of lagging is to be applied circumferentially around the pulley. I should nonetheless determine whether or not this is so, as it was the subject of argument, and may be of more general significance.

98 The description of the method claim appearing at pp 4 and following of the specification (with the exception of the description on p 8 ln 27 - p 9 ln 3 and leaving the drawings out of account) contains the following elements:

- the strip material is to be of a width to adequately cover the width of the pulley (p 6 lns 8-9);
- the lagging is to be taken from the roll and cut to predetermined or desired length by using the cutting sipes (19) and trim lines (18) (p 6 lns 26-29);
- the length is passed around the outer surface of the pulley (p 5 lns 20-21) so that the free ends of the lagging (such as for example at 16) can be abutted against each other so as to join about the outer surface of the pulley (such as at 50) (p 8 lns 3-16).

Those elements describe a method of lagging a pulley by passing a single piece of lagging circumferentially about the pulley. The "predetermined length" is the circumferential length of the pulley. That description is consistent with the method claimed in clause 13.

99 However, the description on p 8 ln 27 - p 9 ln 3 is different. It contains the following elements:

- measure the pulley width;
- cut lengths of lagging equal to the pulley width off the strip (not by use of the cutting sipes and trim lines, but by a cut along a line running perpendicular thereto);

- edge-butt the measured lengths around the face of the pulley;
- use the sipes or trim lines to cut or trim either the last piece of lagging, or the overall composite length of the strips around the circumference of the pulley, so as to enable a close butt fit.

100 As earlier indicated, the skilled worker reading the object of the invention on p 3 would not think it likely that the method to be adopted as the solution to **in situ** lagging difficulties would be the application of a single sheet of lagging around the circumference of the pulley. But whether that expectation comes to pass or not, must depend upon the method for which the specification in fact provides.

101 Both Mr Norrish and Mr Wilson gave as their preferred interpretation of the method claim, the application of a single sheet of lagging around the circumference of the pulley. Mr Clack and Mr Masters were of a different opinion, but the investigation of this issue was mainly pursued through the cross-examination of Messrs Norrish and Wilson.

102 Mr Wilson's ultimate position at the conclusion of his cross-examination was (T 525-526):

- the drawings describe lagging such as Exhibit A applied to a pulley in the way that it has been applied to the pulley in Court, Exhibit L (ie in the manner for which the applicant contends);
- sections of the patent clearly described strips of lagging such as Exhibit A applied to the pulley in the way they have been applied to Exhibit L;
- there are other sections of the patent "which are a bit confusing and which use language which may describe a slightly different system";
- "*But you would agree that you could interpret those other confusing sections in a way consistently with the drawings and the sections which describe the Belle Banne system albeit it is interpreting language which you don't think is the best language to describe such a system? --- Yes, I agree with that.*"

103 Mr Norrish's ultimate position was more ambivalent. He adhered to his preferred interpretation, but when taken to individual passages in the specification which apparently described the circumferential application of a single sheet of lagging, he was prepared to

concede that they could possibly be interpreted in a manner which favoured the applicant. But in order to reach that interpretation:

(a) length where first used in claim 13 is the width of the pulley, but where second used is the composite distance around the pulley equal to the width of the individual strips,

(b) the material is not cut to a predetermined length through a trim line, but through a line at right angles to it.

104 The ultimate problem for the applicant with the method claim is that it specifies cutting the material to a predetermined length through a trim line such as to pass about the pulley such that the ends of the material abut one against the other. That suggests, although it does not necessarily, or clearly and unequivocally, convey that the material is cut once, and a single sheet of material is applied circumferentially around the pulley. When reference is made to the body of the specification for clarification, the text provides conflicting indications. Parts of the text are consistent with that suggestion. The description of the object of the invention and another part of the text is opposed to it.

105 It is conceivable that reference to the drawings might solve the puzzle. But the drawings contain their own equivocations. Were it not for the three lines towards the top of Fig 1, one could, and probably would, conclude that a single sheet has been passed around the surface of the pulley with a single join at the point indicated by 50. That would be consistent with the description of Fig 1 as having "a strip" of lagging applied thereto; on this approach the reason for the upper three lines is unclear, but it cannot necessarily be assumed that they are of significance because, if they were, the number 50 would have been applied to them so as to pick up the body of the specification: see *Nicaro* (par 84 above). However, it is not always the case that every example of a feature is designated with the number.

106 On the other hand, if the same account is taken of the three lines as would have been taken had they been designated by the number 50, and the statement that Fig 1 has "a strip" of lagging is treated as indicating that it has a strip, and parts of two other strips applied to it, then Fig 1, particularly when taken in conjunction with Figs 2 and 7, suggests that the lagging method is as the applicant contends.

107 Given the equivocations in the drawings, they do not resolve the puzzle created by the uncertainties and inconsistencies in the text. The method claim is fairly open to more than one meaning not because of grammatical problems but because, even to a skilled reader, it would not be clear which of two methods claim 13 describes. That problem cannot be overcome by the expectation on the part of a skilled worker, to which I earlier referred. One cannot simply ignore slabs of the text because of an expectation that the specification would not include them. Because the method claim is unclear, because the method claimed is left as a matter of doubt, it neither supports nor rebuts the suggested confinement of claim 1 for which the applicant contends. A further consequence is that the method claims are invalid for non-compliance with s 40(3).

(c) A plurality of longitudinally spaced-apart, elongate and transversely extending cutting sipes

108 "Plurality" means more than one. "Sipe" is not a common word. It is not to be found in the *Macquarie Dictionary*. Some of the experts had not encountered the term prior to reading the specification. A sipe is defined in the *New Shorter Oxford Dictionary* as meaning a groove or channel in the tread of a tyre to improve its grip. In the context of the patent, there was a consensus among the experts that "sipe" is simply a groove or channel. It must, however, be a "cutting sipe", ie a groove or channel adapted for cutting. A sipe is indicated by No 19 in Fig 2 and 7 as shown in par (58) above.

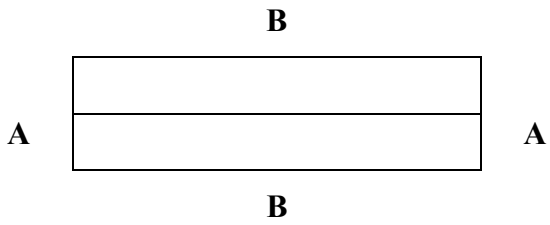
109 The experts called by the applicant and respondent disagreed, at least in their evidence-in-chief, as to whether the cutting sipes on the products Exhibit A and J satisfied the words of the claim. Of course, recourse may not be had to the products for the purpose of construing the claim.

110 The applicant contends that "longitudinally spaced-apart" means that the cutting sipes must be spread apart from each other parallel to the longitudinal dimension of the elongate strip. "Transversely extending" means that the sipes extend in a continuous way across the full dimension which is to be cut. Thus the specification describes sipes which are "longitudinal" and "spaced-apart" and extending all the way along the length of the strip. The sipes on Exhibit A and J satisfy that description.

111 The respondent submits that this construction ignores the fact that "longitudinally spaced-apart" is an adverbial phrase describing the location of the spacing of the cutting

sipes. "Transverse" may simply mean "across", but where reference is made to the long axis, it means "perpendicular to the long axis". The *New Shorter Oxford Dictionary* ("lying across; situated or lying crosswise or athwart; esp situated or extending across the length of something; spec at right angles ...") and the *Chambers Science and Technology Dictionary* ("perpendicular to the long axis") confirm this to be so. In the respondent's submission the sipes are required to be spaced-apart along the length of the strip, extending transversely across the strip, in the sense of perpendicular to its length.

112 Whether sipes which are parallel to the longitudinal axis of an elongate strip can, as a matter of ordinary English, be described as "transversely extending" may be affected by the orientation of the strip. Thus in the case of a strip oriented as follows:



the line A-A might reasonably be described as running across the strip, or as extending transversely across the strip, though it runs parallel to the longitudinal axis. Mr Norrish accepted this at T 318 ln 20 as did Mr Wilson at T 490-491.

113 Mr Masters was prepared to accept that, as a matter of ordinary English, positions which are longitudinally spaced-apart and transversely extending would have the orientation and direction shown in Exhibit K, ie perpendicular to the longitudinal axis. Whilst his evidence at T 168-171 is not completely clear, I think that he was endeavouring to say the same thing as Mr Norrish did at T 318 lns 20-22, namely that if the orientation of the strip is across the face of the pulley, then it is reasonable to describe the sipe as extending transversely across the strip. Whilst the claim describes the elongate strip prior to its application to the pulley, that does not mean that one must necessarily leave this factor out of account in determining what the words would convey to the skilled addressee.

114 On p 7 of the specification, in the context of Figure 1 and Figure 1a it is said (ln 7) that:

> *"... sipes 19 ..., extending transversely across the strip of lagging 12, relative to the longitudinal axis thereof."*

On the same page it said (ln 27) that:

> *"As shown in the accompanying drawings, the lagging 12 is formed in an elongate strip, with a plurality of generally transversely extending elongate sipes 19, ..."*

The "accompanying drawings" include Figure 2, and it is apparent from Figure 2 that the sipes run along the length of the strip, ie parallel to its longitudinal axis.

115 Mr Clack (T 277 ln 20) rejected the proposition that the sipes have to be spaced down the length of the strip but run across its width. In his view, the collocation is "a bit clumsy", but when taken with the figures, it is obvious what it means. The words "transversely ... relative to the longitudinal axis" signified to Mr Norrish at right angles to the longitudinal axis. He accepted that the sipes in Figure 2 ran parallel to the longitudinal axis. He said at T 358-359:

> *"And having regard to the way in which transversely extending is used at the foot of the page, will you agree that it would not be an unreasonable approach to treat transversely extending as having a similar meaning at line 8 and to interpret relative to the longitudinal axis as meaning along. That would not be unreasonable would it? --- I personally wouldn't.*
>
> *You wouldn't but you can understand how somebody might reasonably come to that view, would you? --- It's bending it a bit but yes, someone could.*
>
> *And if one did come to that view it would be a view which was consistent with all of the drawings, correct? --- Yes."*

Mr Wilson (T 494 lns 10-12) agreed, having regard to p 7 of the specification and the drawings, that there was a possibility that the author of the patent had used "transversely extending" in a way different to the manner in which Mr Wilson himself would ordinarily have used that term.

116 The respondent's experts were asked a number of questions as to whether the sipes in Exhibit A and J are "longitudinally spaced-apart". That cross-examination required the assumption to be made that as "longitudinal" means "parallel to the length of the strip", that phrase can be substituted for the word "longitudinally" in the phrase "longitudinally spaced-apart". Neither expert accepted that assumption. Answers given to questions which incorporate that assumption cannot assist in determining what requirement is made by the patent as to the direction and orientation of the sipes because the assumption dictates the

outcome. “Longitudinal” is not the same thing as “longitudinally spaced-apart”: see Masters T 166 ln 18.

117 The AU-A referred to “longitudinal trim lines” positioned to facilitate the removal of excess width of the lagging from the final strip applied to the face of the pulley. The AU-A did not contain the expression “longitudinally spaced-apart” and “transversely extending” which is at the heart of the current dispute.

118 The examiner cited the Holz patent against the proposed patent. The Holz patent is specifically referred to in the amended specification. The lagging the subject of the Holz patent had a sandwich construction comprising a thin metal sheet between two layers of rubber. The bottom lamina is formed with a "plurality of longitudinally spaced transversely extending grooves" which (Fig 4) are shown to run at right angles to the length of the strip (Exhibit Q). The top layer included a “plurality of longitudinally extending slits” which (Fig 8) are shown to run along the length of the strip (Exhibit R).

119 The respondent submitted that this specification which was before the draftsman of the patent in suit, clearly establishes the point of distinction between “longitudinally extending” and “longitudinally spaced-apart”. Whilst there is some force in that submission, at the end of the day the question is as to the meaning of the collocation in the context of the patent in suit. The way in which similar expressions have been used in a different context can, at best, only be of marginal significance in the resolution of that question, and then only because the author had the model provided by the Holz patent before him.

120 I was taken by both sides to the correspondence with the examiner, although each side accepted that the subjective intentions of the patentee could not be relied upon in determining the proper construction of the patent. Whilst each side claimed a legitimate forensic purpose in having recourse to that material, it seems to me that to take account of it would be to infringe that rule. In any event, ascertainment of why it was that the specification was amended so as to take its ultimate form, is essentially a matter of speculation or conjecture, and unhelpful in determining the proper construction of the amended specification.

121 In particular, for reasons which I will shortly state, the terms of p 7 of the instant specification and the drawings are such as to require a conclusion that sipes which the

collocation describes at least include sipes which run parallel to the longitudinal axis of the strip.

122 The claim is expressed in terms of [an elongate strip of] "material for application to the surface of a pulley ... including ... longitudinally spaced-apart, elongate and transversely extending cutting sipes ...". On one possible view, "transversely extending" indicates that elongate cutting sipes, spaced-apart in the required manner, extend from one side of the material to the other without any indication as to their direction or orientation. That was Mr Clack's view (T 276 lns 21-25): "transversely extending" simply means to go from one side to another.

123 On that view, any stipulation as to the direction or orientation of the sipes is to be derived from "longitudinally spaced-apart". If that means "spaced-apart along the length of the sipes" (as Messrs Masters and Clack stated in their first report) then, on one view that does not require any direction. If given a different meaning then direction and orientation may flow from the meaning assigned. The applicant and the respondent adopted opposing positions in relation to the direction and orientation of the sipes. In addition, the respondent advanced the alternative position that the claim gives no direction to the sipes at all.

124 Once the legitimacy of the substitution of "parallel with the length of the strip" for "longitudinally" in the expression "longitudinally spaced-apart" is rejected, then the applicant's case in this regard really comes back to the drawings and the light they throw upon the reference on p 7 to "transversely extending". That statement is subject to the possible qualification that the applicant relies on evidence of Mr Norrish to the effect that "longitudinally spaced-apart" means that at any particular point, or at every point along the length of the strip, the sipes had to satisfy the description of being spaced-apart from each other. The passages on which reliance is placed appear at T 327 and T 334. Ultimately, I do not think that Mr Norrish assented to this proposition: "that's what (sic) we cross I suppose" (T 334 ln 24). Even if he did, his views in this regard were simply based upon a reading of the patent, and cannot bind me.

125 The axis and orientation of the sipes and the trim lines are set by reference to the strip of lagging, rather than the pulley. There is a difference between longitudinally spaced-apart and longitudinally extending. The applicant suggests that "longitudinally spaced-apart"

means “longitudinal” and “spaced-apart”. But “longitudinally spaced-apart” is an adverbial phrase describing the location of the spacing of the sipes. The illustration provided by the Holz patent casts doubt on the applicant’s suggestion. (See par 118 above.)

126 If recourse is had to the body of the specification, p 7 lns 9-10 state that the sipes extend transversely across the strip “relative to the longitudinal axis thereof”. As a matter of ordinary English, that indicates that the sipes extend across the strip in a direction which is perpendicular to the longitudinal axis. These words were added by amendment, and are not to be found in the AU-A. In Mr Clack’s view (T 277) that is a clumsy expression if it was intended to describe sipes running parallel to the length, but it is clarified by the drawings; whereas in Mr Norrish’s view the expression means at right angles to the length of the strip (T 357).

127 The diagrams, and particularly Fig 2 when taken in conjunction with the description on p 7, indicate that sipes running parallel to the length of the elongate strip are “transversely extending”. The diagrams which depict “transversely extending” sipes unmistakably show that they do not go across the strip, (in the sense of perpendicular to the length of the strip), but along it.

128 The words of the claim are either neutral as to the direction of the sipes, or they suggest that the sipes must be spaced-apart along the length of the strip and extending at right angles to it, as the respondent contends. But the words are not so clear and unambiguous as necessarily to exclude any other possibility. When recourse is had to the body of the specification, particularly p 7 and the drawings, it is clear that in the examples given, “longitudinally spaced-apart” and “transversely extending” sipes could at least include sipes which run parallel to the longitudinal axis of the strip. The question then is whether those expressions are confined to sipes which have that orientation and direction, or whether there is included within the expressions sipes which are spaced-apart along the length of the strip and extending at right angles to it.

129 In a practical sense, the direction and orientation of the sipes could be expected to be related to the method by which the pulley is to be lagged. The conventional wisdom in 1984 was that the sipes should run across the face of the pulley, rather than circumferentially around it, because in the former case the draining and self-cleaning functions of the sipes are

enhanced, whereas in the latter case they are not (Norrish T 431-432). If a piece of lagging material is, or pieces of lagging material are to be applied around the pulley circumferentially, then the sipes could be expected to run in a direction perpendicular to the length of the piece so that, when the piece is applied to the pulley, the sipes would run across its face. If a piece is, or pieces are to be applied across the face of the pulley, then the sipes could be expected to run in a direction parallel to the length of the piece. The ambivalence and uncertainty as to the method claim, particularly when compared to the AU-A is to some extent reflected in the uncertainty as to the orientation and direction of the sipes.

130 I do not think that it follows from the fact that the collocation includes sipes which run parallel to the longitudinal axis of the strip that the collocation is confined to sipes which run in that way. I come to that conclusion because:

- p 7 and the drawings are given by way of example only. That suggests that the drawings may only show one embodiment, alternative embodiments being available.
- There is a deliberate departure from the terms of the AU-A, which made it clear that the trim lines were longitudinally extending, in favour of more general expressions. The terms of the AU-A were such as to exclude sipes which ran at right angles to the longitudinal axis of the strip, yet the limitations which produced that result are omitted from the amended specification and the notion that the sipes extend transversely across the strip relative to the longitudinal axis thereof, is introduced by the amendment.
- Messrs Masters and Clack both gave the sipes direction, but this was done by reference to the figures (on the assumption that Fig 1 shows a multiplicity of strips which have been placed across the face of a pulley) or, perhaps, in the case of Mr Masters, by his knowledge of the location of the sipes in the Belle Banne product. In either case the assumption is that because a particular direction is included, any other direction and orientation is excluded. That does not follow.
- The ambivalence or ambiguity which exists, in consequence of the amendments in relation to the method claim, is carried over into the product claim.

131 Thus, I conclude that the product claim is obscure; it is fairly and equally open to diverse meanings, namely that the sipes run at right angles across the strip, on the one hand, or that the sipes run along the length of the strip on the other. Another possibility is that the claim embraces both. Sometimes, ambiguity or insufficiency in description can be resolved by a skilled addressee through the application of commonsense and common knowledge: cf *Innovative Agriculture Products Pty Ltd v Cranshaw* (1996) 35 IPR 643, 666. I do not think that this is such a case.

(d) Raised portions between cutting sipes

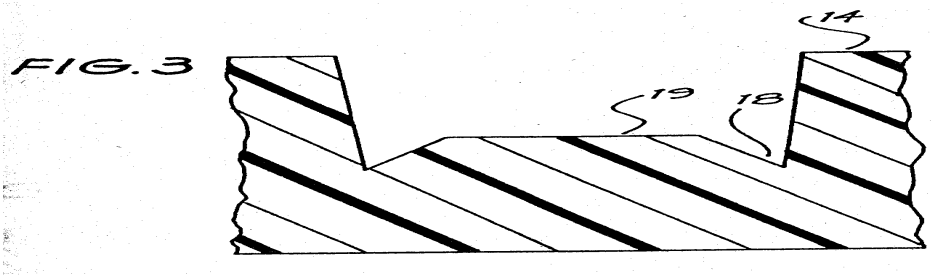
132 The raised portions are the parts of the lagging which make contact with the underside of the pulley belting. Given that a sipe is a groove or channel in the surface of the lagging and the fact that there is required to be more than one, the portion between the sipes will, by definition be raised. This element of the claim was not the subject of controversy.

(e) Elongate trim lines, integrally formed or provided at each side of the cutting sipes

133 "Trim line" is not a term of art. In some contexts it might signify a line along which a cut might be made with the assistance of a rule. If "trim line" is to be construed in that general way in the patent in suit then it has a trim line, but so too did earlier products such as Bandag, ETR70 and Gortread.

134 Fig 3 in the patent illustrates sipes (19) and the trim lines (18). Mr Masters' evidence was that the sipe is defined by two imaginary lines extending vertically from the outer edges of the flat raised portion indicated by the numeral 19. Nobody else, whether witness or barrister, embraced that description. All other experts regarded the cutting sipe as embracing everything within the gap between each raised portion, and I accept this to be so.

135 Fig 3 is as follows:



Pages 7-8 of the specification includes the following:

> *"At the side of each sipe 19 is an indent or recess, in the form of an elongate trim line 18 ..."*

Page 5 line 23 of the specification states:

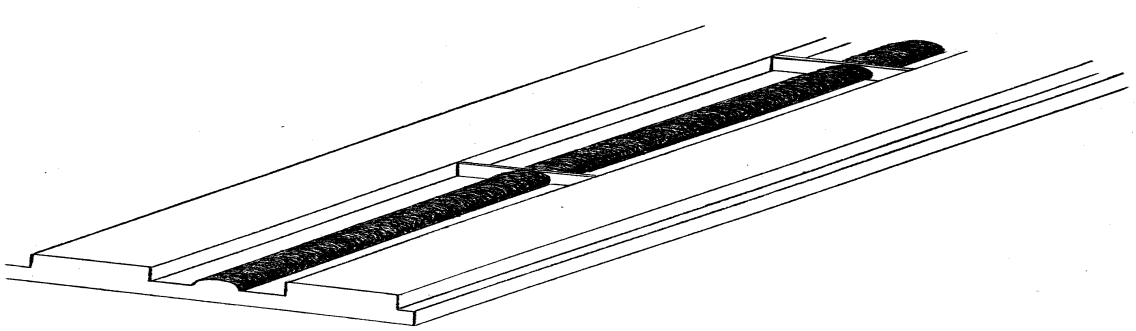
> *"The sipes and trim lines are integrally formed or moulded into the material of the lagging and extend below the surface thereof ..."*

136 Accordingly, the expression "trim line" in the patent refers to an "indent or recess" integrally formed or provided at each side of the cutting sipe. There was general agreement between the experts that whilst the trim lines are located within the cutting sipes, they are an additional physical feature to the sipes, and serve to provide a convenient guide for a cutting knife. The v-shaped indentation shown on Fig 3 provides a means by which a knife, such as a Stanley knife, can be located with some precision to give a straight cut. "Trim" is a word used in the industry to describe a flush or neat cut. But there is nothing in the body of the specification which assists in determining whether a trim line must be in the v-shaped form shown in the drawings, or if not, what else is intended.

137 In my view, the drawings operate so as to illustrate, rather than to confine the concept of a trim line. A trim line, although located within the cutting sipe, is an additional feature above and beyond that which would be possessed by a flat bottomed cutting sipe. Otherwise the words "formed or provided" would have no work to do. The additional feature is that of an indent or recess integrally formed or provided at each side of the cutting sipe. The precise shape of the indent or recess is not critical, provided it is such as to provide a means by which a cutting tool can be located with some precision to give a straight cut. Having regard to their purpose, trim lines must be straight.

138 The contest between the parties is as to whether the accused product contains trim lines at all, and if it does whether they are formed or provided "at each side" of the cutting sipe. A cross section of the accused product is illustrated by the following sketch, which shows a flat bottomed cutting sipe with a rounded, semi-circular rib running down the middle of the sipe. It is common ground that the accused product does not contain the v-shaped indent or recess, but it is the applicant's case that there is a trim line on each side of the cutting sipes in the accused product, in the form of indents or recesses on either side of the

rounded rib. The applicant contends that although the trim lines on the accused product may not be as precise as those shown in Fig 3, they are in substance the same as the v-shaped trim lines; just not as good.



Infringement of claim 1

139 A combination patent will only be infringed if all essential integers have been taken. If, on its true construction, the claim is for a particular combination of integers and the alleged infringer omits some of them, the alleged infringer escapes liability: *Nicaro* at 559. The issue of infringement involves a comparison between the claims as construed, and the accused product.

140 Both cutting sipes, and trim lines integrally formed or provided at each side of the cutting sipes, are essential and cumulative features of the claim. They are essential features of the claim because they are specifically referred to in the claim, and have a role to play in the achievement of the object of the invention, namely straight forward and efficient lagging of a pulley in situ. It is therefore necessary that both features be found in the accused product. If the features are present in the accused product, it does not matter that they may be there "in a disguised or mutilated form": *Olin Corporation v Super Cartridge Co Pty Ltd* (1977) 51 ALJR 525, 530.

> *"... it remains the law that a defendant may not take the substance of an invention unless the wording of the claims makes it clear that the relevant area has been deliberately left outside the claim"* (*Minnesota Mining* at 286).

The "substance" of the invention may be taken, in respect of a particular integer, by the substitution of something which has the same qualities: *Ramset Fasteners (Aust) Pty Ltd v Advanced Building Systems Pty Ltd* (1999) 44 IPR 481, 507. A difference which avoids infringement must be a material difference: *Elconnex* (1991) 32 FCR 491, 515; 25 IPR 173.

141 Mr Masters, in his evidence-in-chief, asserted that the accused product had cutting sipes which had trim lines on either side, although he did not elaborate upon those assertions. In cross-examination his position ultimately became that the semi-circular rib is not a cutting sipe; if there are any sipes on the accused product they can only be represented by the channels on either side of the semi-circular rib and on that basis the accused product does not have trim lines as required by the patent. That is because the patent requires the trim line to be an additional feature of the sipe, and not merely the point at which the flat bottom of the sipe intersects with the vertical section (T 179 ln 22 – T 180 ln 8).

142 Mr Clack, in his evidence-in-chief, said that the accused product incorporated "grooves at each side of the cutting sipes which can be used as a convenient guide for a cutting knife". He did not elaborate upon that contention in his first report. In his third report he indicated that there were trim lines on either side of the rounded ribs and also at the boundaries of the cutting sipe. During the course of his cross-examination Mr Clack said:

- the trim line is a feature which the patent requires to be distinguishable from the sipe itself (T 289 ln 20);
- the v-shaped indentation shown in Fig 3 is not to be found in the accused product (T 291 ln 13);
- the edge of the raised semi-circular rib provides a line one can trim along (T 291 ln 23).

At T 294 ln 1 he said:

> *"Is it your understanding of the term trim line, as it is used in this patent, that that feature is present if you can put a steel ruler along it and then use the edge of the steel ruler to cut? --- That's correct, yes".*

143 I think that it is an exaggeration of Mr Clack's evidence at T 294 lns 19-28 to treat him as having accepted that the trim lines were required by the patent to be in a v-shape. All that he acceded to, in my view, is that a v-shaped groove was detailed in the drawings. If I am wrong in that assessment of Mr Clack's evidence and if he did agree that the trim lines are required to be in a v-shape, then I do not agree with him. My views in this respect are as stated in par 137 above. At the end of the day Mr Clack's position was that the point at which the semi-circular rib meets the base provided a recess or groove where the lagging can be cut; there was no reason for the semi-circular rib to be there other than to create a trim line.

144 Mr Norrish's evidence-in-chief was to the effect that the flat bottomed grooves in the accused product do not provide a trim line. It seems to me that he resiled from that position in cross-examination. At T 376 the following appears:

> *"You'd understand, would you not, that a trim line was an indent or recess which enables the lagging to be cut neatly or trimly? --- Yes.*
>
> *You would have understood from reading the patent that the trim line would therefore have to be straight? --- Yes.*
>
> *Certainly not curved or zig zagged. Correct? --- Yes.*
>
> *Would you agree with me there is a recess or indent on either side of the rib which extends along down each of the cutting sipes of the Beltreco product? --- Yes, there is.*
>
> *And each of those indents or recesses could usefully be used to trim the Beltreco sample? --- You could use those, yes.*
>
> *You'd regard them as recesses on either side of the rib in the cutting sipes as trim lines within the meaning of the patent? --- Not the same shape but along the same lines you could say, yes.*
>
> *Within what you understand as being described in the patent generally? --- Yes.*
>
> *As indents or recesses useful for trimming? --- Useful, yes.*
>
> *Agreed? --- Yes."*

145 Mr Wilson's evidence-in-chief was that the grooves on the accused product were flat bottomed, without any v-shaped or other shaped indent or recess as is required by the nature of a trim line. Again, it seems to me that he resiled from that position in cross-examination. At T 503 the following appears:

> *"Looking at the sipes in Exhibit J you see there is a rounded rib which runs down the centre of each of them? --- That's true.*
>
> *Would you agree that the logical place to put the knife would be in the indent or recess on either side of that rounded rib? --- Again if that – if the maths coincided with that requirement.*
>
> *Yes. Well, on the assumption that the maths coincided, that would be the logical place to put the knife, namely in one of the indents or recesses on either side of that rounded rib, do you agree? --- Yes, I would agree that.*

Would you agree that the indents and recesses on either side of that rounded rib, are suitable to receive a knife to make a neat and flush cut? --- Yes, I would agree with that.

You would agree wouldn't you, that you would understand the reference in the Barnes Patent to trim lines, to refer to indents, or recesses which allowed for the lagging to be cut to size? --- You are referring to the V section on either side of the sipe?

Well, I'm asking you, having considered the whole of the patent, including the drawings and the description, would you agree that your understanding of the reference to trim lines in the Barnes patent, is to refer to indents or recesses which allow for the lagging to be cut to size, one example of which is the V recess shown in the drawings? --- Yes.

Another example of such an indent or recess would include the indents or recesses on either side of the rounded rib in the Beltreco example? --- Yes, I would have to agree with that.

You would agree that having regard to the fact that the grooves or sipes on the Beltreco sample provide useful places for cutting the sample, that they could be described as cutting sipes? --- Yes, I would agree with that."

146 Of the applicant's experts called to establish the presence of trim lines in the accused product, Mr Masters ends up accepting that the accused product does not have trim lines as required by the patent, and Mr Clack adheres to his original contention that the accused product does have trim lines, but in so doing adopts a definition or description of trim lines which is so attenuated that it is to be found in the prior art. Yet the respondent's experts, called to negate the presence of trim lines in the accused product, end up accepting that the accused product does contain trim lines, albeit on either side of the semi-circular rib.

147 I do not think that one can resolve the shifts and conflicts in the expert evidence simply by "preferring" the evidence of one or more experts over that of another or others, if only because their qualifications, experience and integrity are not open to question, nor were they called into question. With such guidance as one can derive from this evidence, it is thus appropriate for me to look at the accused product in the light of the claims as I have construed them, and decide for myself whether it contains trim lines integrally formed or provided at each side of the cutting sipes. See *O'Kelly Holdings Pty Ltd v Dalrymple Holdings Pty Ltd* (1993) 45 FCR 145 at 156 per Sweeney and O'Connor JJ:

"In my opinion, the Court's duty is to form and act on its own original opinion, taking such assistance as it can from the opinion of experts, but it is

not bound, nor should it defer, to the opinion of experts in the sense of permitting experts to hijack the fundamental fact finding obligation of the Court".

148 There must be an indent or recess formed or provided at each side of the cutting sipe which enables the lagging to be cut neatly or trimly. It is not clear why the expression "formed or provided" is used, as "provided" is broader in its reach than "formed". Is there, then, an indent or recess provided at each side of the cutting sipe which enables the lagging to be cut neatly or trimly? The draftsman must have intended to bring about an advance over the prior art, hence, unlike Mr Clack, I do not accept that a trim line is simply a line along which a steel ruler can be placed, the edge of which can be used to make a cut. Additionally, the diagrams suggest that this is not so.

149 The cutting sipe consists of the gap between the raised portions. All experts other than Mr Masters, accepted this to be so. Thus on the accused product there is a cutting sipe consisting of the gap between the raised portions, rather than two cutting sipes, one on either side of the circular rib. For trim lines to be present, they must be:

- an additional feature of the cutting sipe;
- an indent or recess in the cutting sipe;
- found at each side of the cutting sipe.

The semi-circular rib, placed in the middle of the gap between raised portions on the accused product is an additional feature of the cutting sipe. It serves to create an indent or recess on either side of the rib adapted to facilitate the passage of a knife. Those indents or recesses are found at each side of the cutting sipe, as the semi-circular rib occupies the middle of the sipe.

150 Whilst the indent or recess on the accused product is not the same shape as that shown in the patent, it has the same qualities as the v-shaped indent. On that basis, the accused product would infringe claim 1 if claim 1 were construed in the manner for which the applicant contends. The contrary argument either treats a v-shaped indent or recess as critical, or proceeds upon the basis that there are two cutting sipes, one on either side of the semi-circular rib, and no trim line unless an indent or recess is provided in relation to the sipes thus described. Neither of these propositions should be accepted; the first for the reasons given in par 137; the second because it is inconsistent with the preponderance of expert opinion as to what constitutes the sipe.

Claim 15 – the omnibus claim

151 Claim 15 is as follows:

> *"Lagging material substantially as hereinbefore described with reference to Figs 5, 6 and 7 of the accompanying drawings."*

152 The applicant contends that as Fig 7 shows the sipes running along the length of the strip, claim 15 is not infected by the obscurities and ambiguity as to the direction and orientation of the sipes which I have found to exist in relation to the earlier claims.

153 Claim 15 is limited to the particular embodiment shown by the drawings which are Figs 5, 6 and 7. That includes (Fig 7) the shape of the cutting sipe and the v-shaped trim lines formed within the cutting sipe. Those features are not present in the accused product. For there to be an infringement of claim 15 the accused product would need to have the same appearance as the product shown in the drawings.

154 That is not the case, hence there is no infringement of claim 15.

Patent 584013

155 A difference between the claims of the two patents is the replacement of the terms "cutting sipes" and "trim lines" by the term "cutting recesses". The applicant accepted that the terms were synonymous, hence there was no need for separate consideration to be given to the terms of the second patent.

Validity
Section 40(3); s 138(3)(f)

156 I have already found that both the method and product claims fail to comply with s 40(3) of the 1990 Act. The obscurities and ambiguity to which I earlier referred leads to the conclusion that the claims are not clear, and are thus liable to be revoked. I will not, however, make any orders at this stage to give effect to this conclusion, but will allow the applicant time to consider its position as to amendment under s 105 of this Act.

157 It is therefore neither necessary nor appropriate to give consideration, at this point, to questions of the applicable priority date. Had I construed the claims in the manner for which

the respondent contends it would have been necessary to consider whether the claims were fairly based on the AU-A of 25 June 1985 because the applicant admits [Exhibit H]:

> *"... if the priority date of any (of) the claims of patents nos. 575408 or 584013 is or are not earlier than 26 April 1988, the patent is to that extent invalid."*

Inventive step/obviousness

158 Having regard to my conclusion that the patent is liable to be revoked under s 138(3)(f) of the 1990 Act on the ground that the specification does not comply with s 40(3), it is perhaps unnecessary to consider the respondent's alternative contention that the patent should be revoked under s 138(3)(b) of the 1990 Act on the ground of want of inventive step, or, to use the language of s 100(1)(e) of the 1952 Act, on the ground that the invention was obvious, and did not involve an inventive step having regard to what was known or used in Australia on or before the applicable priority date.

159 In order to address that question, having regard to my findings on s 40(3), some assumption needs to be made as to what the invention is. The issue of obviousness was argued upon the assumption that the product claims and method claims should be construed in the manner for which the applicant contends, and I will decide the issue on that assumption.

160 Inventive step is to be judged by reference to the state of common general knowledge in the industry in 1984: *Advanced Building Systems Pty Ltd v Ramset Fasteners Ltd* (1998) 194 CLR 171 [10]. Common general knowledge is "that which is part of the ordinary equipment of all persons engaged in the relevant art, ie part of their general background knowledge which they put to use in the exercise of that branch of industry or manufacture" (per Aicken J in *Graham Hart (1971) Pty Ltd v S W Hart & Co Pty Ltd* (1978) 141 CLR 305, 329. The question is whether the invention would have been obvious to a non-inventive worker in the field, equipped with the common general knowledge in that particular field as at the priority date, without regard to documents in existence but not part of such common general knowledge: *Wellcome Foundation Ltd v V R Laboratories (Aust) Pty Ltd* (1981) 148 CLR 262, 270.

161 The process which I have referred to as strip lagging was well known in the industry prior to 1984. The applicant relied upon that fact in support of its submission as to the proper

construction of the patent in suit. But the applicant contends that this patent is new and innovative in its combination of features, particularly the raised portions, plurality of cutting sipes and trim lines in lagging to be applied in strip form. Those features were not to be found in products which had been on the market at June 1984.

162 However, as Windeyer J pointed out in *Sunbeam Corporation v Murphy Richards (Aust) Pty Ltd* (1961) 180 CLR 98, 111, when want of subject matter, or lack of inventiveness is asserted, the thing or process claimed as an invention is assumed to be new. It is clear that the fact that something has not been done before is not an answer to a plea of obviousness: *Preston Erection Pty Ltd v Speedy Gantry Hire Pty Ltd* (1998) 43 IPR 74 at 85. As Cotton LJ said in *Britain v Hersch* (1885) 5 RPC 226 at 232:

> *"I do not agree with the view ... that when anything is done which has not been done before, that is sufficient to justify a patent being obtained for it. In my opinion, it must be a question of whether there is sufficient invention to justify a monopoly being granted by the Crown for the particular thing."*

163 In *Acme Bedstead Co Ltd v Newlands Brothers Ltd* (1936) 58 CLR 689 a well designed bed containing new features compared with all known previous beds was a good and effective article, but not a patentable invention, since the plaintiff merely applied well-known things to an article to which they had not formerly been applied. At 709 Dixon J said, of the inventor:

> *"... he was not employed in invention but in supplying out of an embarrassing number of choices open to him that which in its practical application would prove most useful and commercially successful."*

164 Invention means more than novelty. There must be an element of invention or inventive ingenuity, although even a very small advance over what is known may qualify as an inventive step: *Winner v Ammar Holdings Pty Ltd* (1993) 25 IPR 273, 280-281. An improvement which does not go beyond ordinary skilled designing work or mere workshop improvements cannot be considered as having required the exercise of any invention: *Safveans Aktie Bolag v Ford Motor Company (England) Ltd* (1927) 44 RPC 49, 61. However, in *Samuel Parkes & Co Ltd v Cocker Bros Ltd* (1929) 46 RPC 241 at 248 Tomlin J said:

> *"Nobody, however, has told me, and I do not suppose that anybody ever will tell me, what is the precise characteristic or quality the presence of which distinguishes invention from a workshop improvement ..."*

165 The quantum of inventiveness required to establish that the invention is other than obvious has been expressed by various other formulations: the difference between the simple idea which really breaks new ground and an unimaginative extension of well-known techniques into a closely similar area: *Elconnex* (1991) 32 FCR 491 at 507 per Burchett J; whether the subject of the patent "was so obvious that it would at once occur to anyone acquainted with the subject, and desirous of accomplishing the end, or whether it required some invention to devise it": *Vickers, Sons & Co Ltd v Siddell* (1890) 15 AC 496 at 502; (to the same effect, whether if one wished to achieve a particular result, the means of doing so were obvious to persons skilled in the trade: *Acme Bedstead*; whether there is some difficulty overcome, some barrier crossed: *R D Werner & Co v Bailey Aluminium Products Pty Ltd* (1989) 85 ALR 679 at 689 per Lockhart J; whether there is "such an addition to the stock of human knowledge as to entitle the patentee to a monopoly": *Blakey & Co v Latham & Co* (1889) 6 RPC 184 at 189 per Lopez LJ, cited with approval by Cooper J in *Winner* at 293; whether the invention was "beyond the skill of the calling": *Allsop Inc v Bintang Ltd* at 701. Something will be obvious (and hence the patent invalid) if it would appear to anyone skilled in the art but lacking inventive capacity, that to try the step or process would be worthwhile to solve some recognised problem or meet some recognised need: *Coopers Animal Health Australia Ltd v Western Stock Distributors Ltd* (1986) 6 IPR 545 at 565, and the cases there cited.

166 Whether or not the claimed invention involves an inventive step is ascertained on an objective basis. Because the test is objective, it is irrelevant whether the invention was a matter of chance or luck or the result of long experiment or great intellectual effort.

167 An inventive step may lie in the choice and management of integers in a combination patent. However, where one starts with a known article or thing and merely substitutes or adds a known device or means to facilitate the better use of the thing, there is a risk of want of inventive step "unless the combination is substantially a new thing": see *Winner* at 294; *Fallshaw Holdings Pty Ltd v Flexello Castors and Wheels PLC* (1993) 26 IPR 565, 568. But it is the inventiveness of the combination as a whole that must be examined; it is

impermissible to determine inventiveness by a piecemeal examination, integer by integer: *Elconnex* (1992) 25 IPR 173, 184.

168 The applicant contends that neither of the respondent's experts expresses an opinion that the invention claimed is obvious, or that it is a solution to a problem which a skilled worker would have reached as a matter of routine. It will be necessary to return to the expert evidence in due course. The respondent submits that such evidence would be inadmissible on the basis of the statement in *British Celanese Ltd v Courtaulds Ltd* (1935) 52 RPC 171, 196 that whilst an expert witness is entitled to give evidence as to the state of the art at any given time, and is entitled to explain the meaning of technical terms, he is not entitled to say whether any given step or alteration is obvious, that being a question for the Court.

169 However, s 80 of the *Evidence Act* 1995 (Cth) now provides that evidence of an opinion is not inadmissible only because it is about a fact in issue, or an ultimate issue. In *Fallshaw* expert evidence was received, and acted upon, to the effect that the solution to the problem which the patentee claimed to have solved would have been obvious to any competent workman in the field (at 570). Similarly, in *Elconnex* (1992) 25 IPR 173, 186-187 Lockhart J said that it was within the competence of an expert witness to state that the matter put forward as a claimed invention was merely a routine variation of known principles in the field. In *Winner* at 281 Davies J said:

> *"Expert evidence from persons skilled in the field of the alleged invention as to whether the step was obvious or inventive is relevant and helpful though not determinative of the issue."*

170 In *Blanco White, Patents for Inventions* [5th Edn] at 4-228 it is said:

> *"Apart from evidence directed to establishing the technical facts and the conditions and circumstances of the art and industry concerned, it is customary to adduce upon the question of obviousness evidence from expert witnesses as to whether (had they been faced with the alleged inventor's problem) the invention would at the relevant date have been obvious to them. There is usually a conflict of evidence as to this ...".*

It is, however, noted that the balance of the paragraph, which I have not quoted, suggests that this type of ad hoc expert evidence may have its problems and is not as useful or cogent as other evidence which might be called on the point, such as people being faced with a problem, and solving or failing to solve it.

171 In my view, whatever may have been the position when *British Celanese* was decided, expert evidence that a particular step or alteration would have been obvious to a skilled worker in the field, is admissible on the issue of inventive step. In some cases it may be difficult to reach a conclusion on that issue without evidence on that matter.

172 In *British Celanese Ltd v Courtaulds Ltd* (1933) 50 RPC 63, 90 (at first instance), Clauson J said:

> *"I have a man properly informed in the art who knows so and so. I can infer that everybody properly informed in the art will have some knowledge, because they have exactly the same opportunity as he has ... I must be satisfied that he has not an excess of any peculiar or special sort of knowledge, but that what he is telling me is what he has acquired in his ordinary practice as a man engaged in the art."*

173 A body of evidence was placed before me as to the lagging products available in Australia prior to June 1984 and as to publications which described the features of those products. Of the products referred to in the evidence, those which assumed the greatest significance in submissions were:

Bandag Lagging	:	Exhibit GW4
Gortread	:	Exhibit GW5
ETR70	:	Exhibit GW7

There was some evidence that skilled people in the field of conveyor systems regularly had recourse to certain publications before June 1984 (eg Norrish 6/12/99 at [33]), and there was evidence as to the general availability of some products. Except to the extent that specific reference is made hereafter, the common general knowledge amongst skilled people in the field of conveyor systems in 1984, was sought to be established by inference from the disclosures contained in the products and publications to which I have referred.

174 From about 1970, Bandag lagging was applied in strips side by side along the face of the pulley. The lagging has a series of relatively deep channels, and a series of small shallow grooves in the treads. The deep channels are not straight but they run the length of the strip.

175 There is a dispute as to whether the respondent has established either that the Gortread product, or its method of use, was part of the common general knowledge. Gortread was used extensively in the Newcastle/Hunter Valley region after Mr Wilson's company

commenced to manufacture it in 1973. Gortread is lagging in strip form with a tread pattern formed into the surface of the specially compounded abrasion resistant rubber. Gortread was applied so that its longitudinal length ran along the face of the pulley, and the strips were applied side by side around the circumference of the pulley. The tread pattern was designed to expel water from between the conveyor belt and the pulley. Gortread was usually applied by a hot bonding process but was also applied using cold bonding. The strips were sometimes butted side by side with the edges of the neighbouring strips touching. On other occasions the strips were spaced-apart. Mostly a point would be reached where there was insufficient gap for a further full width of strip to be laid. In the experience of Mr Upton, then of BHP Newcastle, the gap would be filled with rubber filler, or the last strip cut to the required width by placing a straight edge along the back of the strip and cutting along the straight edge with a knife.

176 In my view, the evidence enables an inference to be drawn, and I do infer that the features to be found in the Gortread product were part of the common general knowledge of persons engaged in the industry in 1984. Gortread had been on the market for a long time, and was used by large, well-known Australian companies. It is true that Mr Norrish did not mention Gortread in any of his affidavits, but that does not mean that the features to be found in the product were not part of the common general knowledge. The thrust of Mr Norrish's evidence is that they were. Mr Masters, was aware in June 1984 of the technique of applying lagging in strips across the face of a pulley, and in his expectation people who had knowledge of the use and application of lagging materials would have been similarly aware. One cannot infer from the fact that Messrs Langford, Pansini, Johnson, Gollen, Newnham, Sineick and Kurosinski did not refer to Gortread in their affidavits that the features to be found in the product were not part of the common general knowledge of skilled people in the field of conveyor systems, when those who were called (Messrs Langford and Pansini) were not asked any questions on the topic, and when the evidence of all of these men was directed to different subject matter. Messrs Clack, Barnes, Masters, Upton and Renfrew and (necessarily) Mr Wilson, were all aware of Gortread.

177 ETR70, now known as Remagrip diamond, has been supplied by the respondent since the 1970's. ETR70 was supplied in long rolls, 10 m x 2 m, and has a predetermined diamond shaped pattern formed into the cured rubber. ETR70 was normally applied to a pulley in a single piece having been cut to fit.

178 At least since 1978 one of the ways in which ETR70 was used was for the lagging to be cut in strips applied across the face of the pulley in situ. The pattern is normally matched such that the grooves continue uninterrupted around the face of the pulley. Mr Pansini was the Production Manager of the respondent in 1978. He gave evidence that from 1978 onwards, he and others employed by the respondent used a Rillfit machine to cut grooves in ETR70 to reduce the thickness of the rubber along the groove, and then cut the lagging in the middle of the groove. Mr Langford, the managing director of the respondent, lagged pulleys on site with strips of rubber from 1973 onwards.

179 The evidence of Messrs Pansini and Langford establishes that people who were involved in lagging had perceived since at least 1978 that lagging with a prepared pattern could be applied in strips to a pulley on site with a grooved channel to assist in cutting.

180 There was evidence from which an inference could be drawn, and I do infer, that it was not generally known in the industry in 1984, that ETR70 had been supplied in strip form or that it was installed in strips across the pulley face. Similarly, I infer that it was not generally known in the industry in 1984 that it was Mr Pansini's practice to cut lateral grooves in the lagging to reduce the thickness of the rubber along the grooves, and then cut the lagging in the middle of the grooves. However, it does not follow that lagging in strip form, and the use of grooves for cutting purposes, were not part of the common general knowledge in the industry in 1984 (see par 194 below).

181 Counsel for the respondent helpfully prepared a schedule of lagging material known before 20 June 1984. That schedule is reproduced hereunder:

ATTACHMENT "B"

EXAMPLES OF LAGGING MATERIAL KNOWN PRIOR TO 26 JUNE 1984

Date	Lagging material	Relevant Features of Lagging Used or Discussed in Trade Literature in Australia Before 26 June 1984	Reference in Evidence
Late 1950's	**Linatex lagging**	• Made of an abrasive resistant natural rubber material; • Sold in long wide rolls; • Cold bonded to pulley face. (Clack and Masters aware of product: Clack paras 20-21 of second report of 25.2.00; Masters para 19 of second report 29.2.00)	Affidavit of Wilson sworn 6.12.99 paras 8-9.
Early 1960's	**Dunlop lagging**	• Strips having a series of parallel grooves extending laterally across the width of the strip and parallel grooves running along the length of the strip, the two sets of grooves intersecting at 90 degrees Grooves designed to expel water from the surface of the lagging. • Strips applied circumferentially.	Johnson sworn 20 December 1999, para 9, Ex RJ-2
Late 1960's - 1987	**Dunlop lagging**	• In the late 1960's Dunlop manufactured lagging having a different groove pattern. Lagging was 20-40 m long and about 200-1000mm wide. • A series of parallel grooves extended diagonally across the width of the strip. • Grooved lagging supplied in strips applied circumferentially around the pulley to form herringbone pattern pointing in the direction that the belt runs. • Grooves made with grooving tool being a hot wire unit having a shaped blade which heated to burn through the rubber as it was pushed across the surface. • Cold-bonded. • Sold to customers throughout Australia including BHP, SECV, Mt Isa Mines and to various pulley refurbishers. (Johnson para 13) Masters was aware of product: [Second report, paras 11-13]	Affidavit of Johnson sworn 20.12.99 (paras 10,11); Norrish affidavit sworn 6.12.99 Ex RN 9. Johnson sworn 20.12.99, Ex RJ-2. See also undated Goodyear Conveyor and Elevator Belting Manual ("the Dunlop Manual")

1966	Various types of lagging material discussed in Extract from 1966 edition of "Belt Conveyors for Bulk Materials" ("**The Conveyor Equipment Manufacturers Association handbook**"	Features of lagging included: • lagging thickness can vary from a few thousandths of an inch as with spray on coating to considerable thickness as with some solid-rubber vulcanized coatings • common methods of attachment are bolting, painting, cementing, tack welding and vulcanizing; • vulcanized lagging is generally preferred for heavy duty or severe service applications; • drive pulleys which perform in wet or damp conditions are often grooved; • can be obtained in various grooved and other specialized surface finish types	Norrish affidavit sworn 6.12.99, Exhibit RN-6
From 1969 to date	**Micke lagging**	• Lagging had ceramic surface on steel shells • Grooving in various forms: Herringbone pattern, diamond groove, axial groove, without grooving. • Clack and Masters were aware of product: (Clack para 23 of second report made 25.2.00; Masters para 23 of second report of 29.2.00)	Affidavit of Joachim Goller sworn 8.12.99, para 4
At least as early as 1970	**Bandag lagging**	• Made from precured rubber motor tyre tread, • Applied in strips to the face of the pulley so that the strips were parallel to the axial length of the pulley; • The strips were the length of the pulley face and ranged from 500 to 2500 mm. • The upper surface of the lagging had a series of relatively deep channels and a series of small shallow channels in the tread; • The deep channels ran the length of the strip; • The lagging is buffed before being applied.	Affidavit of Wilson sworn 6.12.99 paras 13-15.

About 1973	**Gortread**	• Used extensively in the Newcastle/ Hunter Valley region between 1970 and 1990, including the following companies: BHP, Coal mines such Coal and Allied, Newcastle, Wallsend Coal Company and Bloomfield Collieries, Hymix Quarries, Breckett steel mill waste recyclers, engineering companies including Titan Manufacturing, Waratah Engineering, McColl Engineering, Newcastle Engineering, Mack Engineering, Power stations including Lidell, Bayswater, Eraring, Vales Point and Nu Vale, General Electric Pty Ltd. (Wilson affidavit sworn 6 December 1999, para 20.) • Made from specially compounded abrasion resistant rubber • Tread pattern in the surface formed by major cuts that extend in a zigzag pattern along the length of the strip creating channels; • Small cuts extend into the portions of material between each channel; • Cuts in tread referred to as "sypes"; • Strips (also referred to as pads) applied so that the longitudinal length of the strip ran along the face of the pulley parallel to the axial length of the pulley; • Applied side by side around the circumference of the pulley; • Could be applied in situ; • Could be cold-bonded using a mixed adhesive. • In practice, lagging was applied by measuring off lengths of the lagging from a roll (pulley face plus 50 mm and the strips were applied lengthwise along the pulley face, butted side by side usually with the edges of neighbouring strips touching. (Upton, para 10) • If, by reason of the circumference of the particular pulley, there was insufficient space for the last strip to be applied, there were several approaches (Upton paras 11-12):- • If the gap was small, fill it with rubber, • Space the last few strips and fill on either side with rubber, • Cut last strip to width required by either of two methods: • Place a straight edge along back of strip and cut along it with a knife; or cut along tread pattern along two neighbouring strips by running a knife along the tread groove. The strips were then joined. • Clack and Masters aware of product: Masters, second report, para 14; Clack [T298 lines 11-12]	Affidavit of Wilson sworn 6.12.99 paras17-18 "GW-6" (Gortread brochure) Affidavit of Kim Upton sworn 9.12.99, paras 10-12

26 April 1975	Lagging specifications in example of a typical tender document for State Electricity Commission of Victoria	• *"Drive pulley shall have rubber lagging hot vulcanized to the pulley shells or alternatively fixed by an adhesive to the approval of the Engineer"* • Surface grooved. • Drawing shows lagging in two strips applied circumferentially around pulley. • Each strip has a series of grooves extending diagonally across width of strip which meet to form a "V" herringbone shape.	Johnson, para 14, Ex RJ-4
1976	Extract from 1976 Edition of Conveyor and Elevator Belting, ("**The Goodyear Handbook**")	Information set out included that : • Lagging used on drive pulleys to improve coefficient of friction between belt and pulley, to some degree self-cleaning and prevent wear on pulley; • Lagging can be vulcanized to pulley surface, cemented to the pulley or they can be bolted to the pulley; • Grooved pulley lagging first developed by Goodyear for the long decline belts at Shasta Dam; • Grooving can be done either on vulcanized or bolted on lagging; • Usually in a chevron pattern with apex pointing in direction of belt.	Norrish affidavit sworn 6.12.99, Exhibit RN-4

1978 to date	**Remagrip lagging**	• ETR70, now known as Remagrip Diamond, has been used by Beltreco in a number of ways since the 1970's: it is applied in situ, it is sold to clients to apply themselves (supplied either in rolls 10 m x 2 m or in smaller strips cut to size as required by the client) or it is applied by Beltreco in their own workshop. (Pansini, paras 4-7) • It is applied in a single piece, circumferentially, when the lagging was done in the Beltreco factory or where free access to the pulley was available, or since 1978 it has been cut into strips and the strips applied across the pulley face on site where the pulley is not fully accessible. (Pansini para 7-9). • Evidence from Peter Langford and Vince Pansini of Beltreco that from about 1978 when Mr Pansini joined the company, the practice commenced of making grooves in the ETR product which ran continuously across the strip by using a "Ril-fit" machine. The grooves would be gauged to a depth of approximately 3-4 mm.. These grooves would then be cut through the middle with a knife. Masters understood that a Ril-fit machine was used for cutting grooves [T182 lines 21-25] • Ex GR-3 is a letter dated 31 July 1978 by Beltreco Pty Ltd confirming that Remagrip ETR70 had been used by iron ore miners in north Western Australia during 1974-78 including: Hamersley Iron Pty Ltd, Mount Newman Mining Pty Ltd, Cliffs Robe River Iron Associates, Alcoa of Australia Pty Ltd, Goldsworthy Mining Pty Ltd, Australian Iron & Steel Pty Ltd. Masters was aware of ETR70 used at Kooragang Island during the period 1979-1984 [T184 lines 1-3] • Exhibit GR-4 is an early brochure describing ETR70 which had preformed grooves in a diamond pattern. ETR and Mini-ETR supplied in strips 10 m x width max 2000 mm. • (Clack was also aware of Remagrip Diamond being available in 1984: para 38040 of second report of 25.2.00)	Affidavit of Peter Langford sworn 28 March 2000 and oral evidence [T564 line 24 – T573 line 10]; Affidavit of Vincent Pansini sworn 28 March 2000, and oral evidence [T591 – T613]

1983	**NILOS lagging**	• Could be cold bonded • Formed with diamond or herringbone profiles. • Masters aware of product from brochures and trade fairs: second report para 28-29.	Norrish affidavit sworn 6.12.99, referred to in Ex RWN-16, page 329 from Bulk Solids Handling, Vol 3, No 2, June 1983.
1979	**Extract from 1979 paper, "Belt Conveyors for Bulk Materials" ("The Conveyor Equipment Manufacturers Association handbook")**	• lagging thickness can vary from a few thousandths of an inch as with spray on coating to considerable thickness as with some solid-rubber vulcanized coatings • common methods of attachment are bolting, painting, cementing, tack welding and vulcanizing; • vulcanized lagging is generally preferred for heavy duty or severe service applications; • drive pulleys which perform in wet or damp conditions are often grooved; • the grooves commonly take the shape of a herringbone or chevron pattern cut into the lagging;	Norrish affidavit sworn 6.12.99, Exhibit RN-5
Undated, prior to 1984	**Prok Standard HE 020**	• Pulley lagging specification – sets out requirements for standard and non-standard lagging materials, including grooving patterns, rubber compounds, application.	Ex RWN-12

182 A consideration of the evidence leads me to conclude that it was well known amongst skilled people in the field of conveyor systems in June 1984 that material for lagging pulleys could, and did include a variety of combinations of features including:

- lagging made from rubber, or rubber based material;
- grooved lagging in various patterns and running in various directions, including diamond groove, for dispersion of water and muck;
- adaptation for application to a pulley in situ in strips either across the face of the pulley or circumferentially;
- various methods of attachment including cold bonding; and
- use of ceramics (Micke).

183 Thus it was generally known in the industry in June 1984:

- that lagging material could be applied to the surface of a pulley in strips;

- that the upper surface of the lagging material could be formed of a predetermined pattern. The pattern could take a variety of forms, including diamond shape, and could include channels or sipes which could be cut (see par 194);
- that the strips could be placed side by side around the circumference of the pulley, until it is fully covered.

184 The question, then, is whether the development from what was known to what is claimed, is an inventive step: ie would it have been obvious to a skilled worker in 1984 to make a product with those features if he were faced with the problem of devising lagging which could be effectively applied in situ?

185 There is a relative paucity of features in the product as described in claim 1. The only element in the invention as claimed which might serve to differentiate it from what was known and understood in June 1984 is the cutting sipes spaced-apart along the length of the strip with the v-shaped trim lines provided at each side of the cutting sipes.

186 The "recognised problems" (*Coopers Animal Health* – see par 165) referred to in the patent as awaiting solution prior to the invention claimed were:

- time, expense and difficulty in detaching metal backed lagging (p 2 lns 25-32);
- difficulty in lagging, repair and relagging in situ (p 3 lns 3-10);
- the need for a lagging material and method of lagging which can be applied in situ and in a substantially straight forward manner (p 3 lns 14-22).

The specification is relatively unspecific as to the problems for which it claimed to provide a solution.

187 The inventor, Mr Barnes, stated in his affidavit (3/3/00) that the "problems" which his invention claimed to have overcome were as referred to in pars 17-23 of that affidavit. Those paragraphs:

- refer to the expense and inconvenience involved when a pulley is lagged off-site by the application of a continuous sheet in an autoclave;

- refer to the wastage which is often involved in the application of a standardised size to a pulley having regard to the fact that there are no standard pulley dimensions within the industry;
- refer to the problems which are involved when a single sheet is cold bonded to the pulley, perhaps in situ;
- refers to Gortread as being deficient inasmuch as:
    - the cavities cut into the tread quickly trapped and filled with muck, thus reducing the co-efficient of friction;
    - the tread pattern does not have channels running across the pulley face to maximise the dispersal of water;
    - there is no means provided to assist or enable trimming of the strip to take place so as to provide a neat abutment of the final strip.

188 Mr Barnes asserts that his strip lagging overcame those problems, and had the following advantages over traditional lagging methods:

- the strip pattern helped secure a good fit to the pulley;
- the cutting sipes and trim lines aided water dispersion;
- the lagging was flexible enough to be able to lag "crown pulleys".

189 Messrs Clack and Masters listed what they regarded as being innovative aspects of the combination of features in the Belle Banne product.

190 Mr Clack, in his second report, listed the following innovative aspects:

- an easy and convenient method of applying lagging to a pulley face on site using the strip method;
- a more manageable product than sheet lagging such that lagging a pulley is a task which a workman could accomplish on his own;
- an arrangement of cutting sipes and trim lines enables the strips to be spaced so that the pattern is maintained all the way around the pulley;
- ceramic tiles are superior to the Micke product.

191 Mr Masters, in his second report, said that the prior art products did not embody all or substantially all of the following features. The comments in brackets are mine.

- Strip form (Slidelag, Gortread, Bandag, and (in some applications, ETR70)
- A ready-cut tread pattern (Gortread, Bandag and ETR70 had a tread pattern, which, at least in the case of Gortread and ETR70, could be readily cut)
- Bi-directional (The claims of the patent in suit are not so limited, nor is this feature referred to in the specification)
- Lagged in situ (The claims of the patent in suit are not so limited; Gortread and ETR70 could be and were so applied)
- Cold bonded (The claims do not refer to the method of adhesion; Gortread and ETR70 were cold bonded)
- Neat abutment -
- Ceramics (Micke lagging had ceramic surface on steel shells; there is nothing new in using ceramic tiles as lagging: Clack T 297 lns 25-28.)

192 I accept that it is not necessary that the specification identify the inventive step: *Winner* at 285. However, if and insofar as Mr Barnes claims that application of strip lagging to pulleys in situ, or a lagging material adapted to that use is **his** invention then his claim is an exaggeration of the factual situation. That technique, and material which would enable its achievement were well known in the industry in June 1984. The terms of the patent, and Mr Barnes' affidavit, appear to place the subject matter of the supposed invention at an exaggerated level. Many of the advantages which Messrs Clack and Masters list are described in terms of the product as manufactured, rather than in terms of the invention as claimed. The question of obviousness is to be determined by reference to the invention as claimed, not by reference to some particular commercial product falling within the claim. Again, many of the advantages which they list are referrable to matters which were obvious at the priority date, or not the subject of the invention as claimed.

193 Messrs Masters and Clack, in their evidence-in-chief, distinguished the products on which the respondent relied as establishing "obviousness" from the product described in

claim 1 upon the basis that the earlier products did not embody cutting sipes or trim lines on the upper surface of the lagging material. In addition there was a dispute as to whether ETR70 was available in strip form. Mr Norrish accepted that none of the products listed in the schedule of lagging materials had the same configuration of cutting sipes and trim lines as shown in the drawings for the product the subject of claim 1.

194 As to cutting sipes Mr Masters accepted in cross-examination (T 182 ln 26) that it was known at or before June 1984 by those working with lagging for pulleys that grooves and channels could be applied as part of the moulding process of the rubber (based) product that was to be cold banded onto a pulley. Those working with lagging would appreciate that it could be cut down a groove or channel (T 186 ln 5). Mr Clack accepted (T 295) that the Bandag product had grooves and channels along which it could be cut (albeit with difficulty). He accepted that Gortread and ETR70 had sipes which could be cut along (T 295). Mr Clack (T 297) said that the location of a line to cut along was simply a matter of choice for the manufacturer of the product; it was a matter of ordinary perception that if you did not want to cut through a pattern then the cutting line should be located so as to put a break in the pattern, and the product moulded accordingly.

195 It was common ground that none of the lagging products available prior to the priority date contained the v-shaped recesses or trim lines. As to these features, Mr Norrish's evidence-in-chief was:

> *"In my view, the addition of further recesses on either side of such grooves of the type depicted in the figures forming part of the first patent is a trivial and unnecessary addition.*
>
> *In my view, the lagging defined in the claims of the two patents is equivalent to lagging which was available in Australia as at June 1984. It is essentially strip lagging which can be cut to length to fit around a pulley through grooves running across the lagging. The only way in which the claimed lagging differs from lagging which had been used for many years was that it has a particular configuration of v-shaped recesses on either side of such transverse grooves. In my view, this is neither necessary nor effective in meeting the stated objective of the patents in achieving a closed-butt fit between ends of lagging wrapped around the pulley."* (6/12/99 at [106] – [107])

196 The respondent submitted that this passage is direct evidence from an expert which would negate inventive step when taken in conjunction with the evidence referred to in par 194 above.

197 In assessing that evidence, it needs to be kept in mind that Mr Norrish was propounding a particular construction of the method claim and account needs to be taken of other evidence given by Mr Norrish. First, Mr Norrish agreed (T 416 ln 7) that the Belle Banne product was innovative in its own way, different from other products which he had seen on the market, and one which works well.

198 Second, Mr Norrish accepted that:

- the Holz patent was not successful in its attempt to solve the problem of lagging in situ (T 381);
- the Belle Banne product minimises wastage of materials better than any other product he has come across (T 388);
- the Belle Banne product was the first product where someone thought of the idea of taking advantage of grooves for four purposes, namely, cutting, dispersal of water, maintenance of a regular pattern around the face of the pulley, and enabling a join to be made below the surface of the belt (T 404, 412).

199 However, this evidence does not rise above the proposition that Belle Banne lagging is better, or at least, more attractively designed than other products on the market up to mid 1984. The addition of the longitudinally spaced-apart cutting sipes containing trim lines is simply a variation upon the design of, eg, the design used in the Gortread product. It is not an improvement so as to produce a combination which is substantially a new thing.

200 The applicant submitted that there was a perceived problem, in the case of strip lagging, of keeping the strips in position once applied across the face of the pulley. There were various solutions to that problem including hot bonding, the use of metal runners (Slidelag) or the use of metallic channels welded to the pulley designed to hold the strips in place (Holz). The problem of keeping lateral strips of lagging in place was said to be solved in the case of the patent in suit by the abutment of the strips of lagging against each other. It is a lot simpler process than the process described in the Holz patent, but whether that process had compensating advantage was not explored.

201 The applicant submits that this solution to a known problem demonstrates an inventive step. Neither the terms of the patent, nor Mr Barnes' affidavit point to this as being a real problem for which Mr Barnes had devised a solution. As earlier indicated, "obviousness" involves an objective enquiry, and if there is an inventive step, the fact that neither the patent, nor the inventor refer to it is beside the point. However, the evidence of Mr Upton and Mr Pansini demonstrates that Gortread and ETR70, when applied in the field, were applied across the face of the pulley. Ordinary skilled workmen involved in applying lagging had an appreciation, as "part of the furniture of their mind" that it should be applied in this way. The absence of specific reference to this matter in the patent specification and Mr Barnes' affidavit tend to confirm that this is so.

202 The applicant contends that the use of lagging with longitudinal grooves which run across the face of the pulley was contrary to the conventional wisdom at the time. In the applicant's submission, Norrish (T 434 lns 9-15) accepted that this was so. But earlier in his evidence (T 431 ln 20 – 432 ln 10) he said that the conventional wisdom in 1984 was that the grooves should run across the face of the pulley, rather than circumferentially. Barnes (3/3/00 at [37]) confirmed the superior efficiency of cutting sipes running parallel to the pulley face. Assuming that the grooves are longitudinal, but that the lagging is applied across the face of the pulley, then the direction of the grooves is consistent with the received wisdom, rather than opposed to it. There seems to be some confusion in the passage of Mr Norrish's evidence on which the applicant relies. In any event, it was known that grooves could or did run in either direction, it was simply a matter of making a choice between them. The practical evidence of Mr Pansini indicates that a join down in the groove is a matter within the competence of an ordinary skilled worker in the industry: see also par 194 above.

203 I accept that the Belle Banne product has been a commercial success. I accept that it is a well-designed product, which is user friendly and attractively priced. There may be many explanations of commercial success. It may demonstrate a long felt want which is suggestive of invention. But there may be many other explanations such as, eg good workmanship, price or qualities outside the claims of the invention.

204 The product was sold commercially in 1985. There is no evidence of an attempt by competitors to introduce an equivalent product until March 1996 (respondent) or 1997/98 (Prok). It is not a case in which there was copying of the product immediately it was

launched on the market, which may be a powerful indication that the invention is not obvious: see *Elconnex* (1991) 32 FCR 491, 510.

205 According to Mr Langford, the Belle Banne product had some impact on ETR70 (Remagrip Diamond). The applicant bears the evidentiary onus in satisfying the Court that commercial success is an indicium of inventive merit. Apart from Mr Langford's statement, referred to above, no comparative information is adduced. The commercial success of the product may be referrable to a variety of matters. In the circumstances of the present case I cannot infer from the fact of commercial success that the combination of features to be found in the patent is a substantially new thing. The remarks of Lord Herschell in *Longbottom v Shaw* (1891) 8 RPC 333, 336 are apposite:

> *"Great reliance is placed upon the fact that when this patent was taken out and frames were made in accordance with it there was a large demand for them. It is said that at all events in the experience of certain houses dealing largely in these matters, the new apparatus, as it is called, of the Plaintiff superseded the one formerly in use. My Lords, I do not dispute that that is a matter to be taken into consideration; but again, it is obvious that it cannot be regarded in any sense as conclusive. I think that its value depends very much upon certain other circumstances. If nothing be shown beyond the fact that the new arrangement results in an improvement, and that this improvement causes a demand for an apparatus made in accordance with the patent, I think it is of very little importance. If it were shown that the defects which this apparatus is designed to remedy, or does remedy, were defects which had been felt, and the knowledge of which had come to the public so that there was a demand for a new apparatus which did not possess those defects, and if it were shown that that demand had lasted for a considerable time, so that men's minds were likely to have been engaged upon a mode of remedying those defects, and they were not remedied until the apparatus was devised for which the patent is taken out, no doubt that would have afforded considerable evidence that the adaptation or arrangement of the patentee was not obvious, inasmuch as you would then have a demand for some considerable time not met although known, and the fact that it was not met for a considerable time though known would indicate that the mode by which it was ultimately met could not have been so obvious as otherwise might have been supposed."*

206 The commercial success is not shown to have been due to having overcome some defect in the prior art where the need for a solution was long felt. Lagging may not have been manufactured in that form before, because to use the words of Mr Masters "... nobody had bothered to do it because the call was not necessarily there" (T 187 lns 8-12).

207 I am conscious of the "seductive clarity of hindsight": *Allsop Inc v Bintang Ltd* at 701, that "... a scintilla of inventiveness is sufficient" and that "no smallness or simplicity will prevent a patent being good": *Meyers Taylor Pty Ltd v Vicarr Industries Ltd* (1977) 137 CLR 228, 249. Nonetheless it seems to me that the lagging the subject of the claims of the patent in suit was not the product of invention, and added nothing to the stock of knowledge about pulley lagging, or materials for use in pulley lagging as at the relevant time.

Novelty

208 Reliance on the Holz patent as an anticipation was abandoned. On my construction of the patent, a trim line is an indent or recess formed or provided at the edge of the cutting sipe. The existence of a trim line is not established if all that appears is that there is a line along which a knife may cut.

209 The respondent accepted that if the trim line is a feature additional to a mere cutting sipe, then the only other patent relied upon, as an anticipation – the Nippon Tsusho patent – does not anticipate the claims of the patent in suit.

210 In my judgment, a trim line is an additional feature, hence it has not been established that any prior publication or use discloses all of the features of the invention in "clear, unequivocal and unmistakable terms": *Nicaro* at 549.

Specification does not describe best method contrary to s 40(2)(a)

211 This issue was argued upon the assumption that the construction of the patent for which the applicant contends is correct, and upon the further assumption that my conclusion as to obviousness is wrong.

212 In the respondent's contention, as at the date of filing of the complete specification, Mr Barnes knew that the best example of the Belle Banne product was one with the particular dimensions referred to in his affidavit sworn 3 March 2000.

213 As a matter of fact, I do not think that this contention is made out. Mr Barnes says that he was led to those dimensions by a factor not within his control, namely the capacity of the machine with which he was working. It is not said that other dimensions would not lead to the same outcome.

Utility

214 It is a ground of revocation of a patent that the invention, so far as claimed in any claim of the patent, is not useful. "Utility" does not refer to commercial viability; rather it means that the invention as claimed by the patentee does not attain the result promised for it by the patentee. In other words the question is whether, by following the directions of the patentee, the result which the patentee preferred to follow can, in fact, be produced: Ricketson, *The Law of Intellectual Property* (1984), p 963.

215 The respondent contends that it is promised that the invention will provide accurate coverage, without waste material with the ends of the material abutting neatly and securely within an elongate sipe if the method as claimed is employed for the application of the lagging material. In the respondent's contention whether the promised result will be achieved is entirely fortuitous. It will be entirely dependent on the circumference of the pulley whether the material can be cut through a sipe or trim line to achieve the desired length of material for the pulley.

216 That contention is founded on the proposition that the lagging method prescribed by claim 13 is the application of lagging circumferentially. I have not so construed the method claim, and have found that the method claims are liable to revocation for lack of clarity. The applicant does not, in any event, seek to enforce the method claim in these proceedings. Even if the method claim were construed in the manner for which the respondent contends and even if, as so construed, the claim lacked utility, it would not infect the product claim.

217 Accordingly, there is neither need nor practical utility in giving further consideration to this issue.

Conclusion

218 The patents are liable to be revoked for lack of clarity and obviousness. I will defer making orders to give effect to these conclusions for a period to enable counsel to consider these reasons, and their preferred course.

219 I direct that the parties bring in short minutes of order to give effect to this decision on a date to be arranged.